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STRUCTURE FILE UPDATES: 4 JAN 2004 HIGHEST RN 634148-43-9
DICTIONARY FILE UPDATES: 4 JAN 2004 HIGHEST RN 634148-43-9

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2003

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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
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<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> file hcaplu

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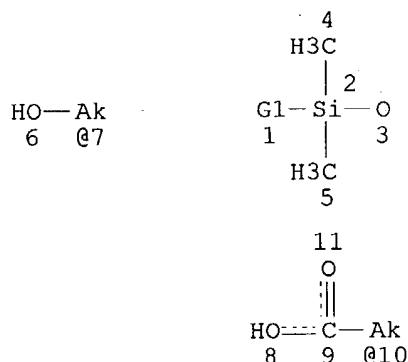
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FILE COVERS 1907 - 6 Jan 2004 VOL 140 ISS 2
FILE LAST UPDATED: 5 Jan 2004 (20040105/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> d que

L2 SCR 2043
L3 STR



*73,280 polymers from query
which covers the
siloxanes in the specification*

VAR G1=CH3/OH/7/10
NODE ATTRIBUTES:
CONNECT IS E1 RC AT 11
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE

L4 13280 SEA FILE=REGISTRY SSS FUL L3 AND L2
L5 1 SEA FILE=REGISTRY ABB=ON SILICA/CN
L6 2 SEA FILE=REGISTRY ABB=ON TITANIA/CN OR ZINC OXIDE/CN
L7 3 SEA FILE=REGISTRY ABB=ON CALCIUM CARBONATE/CN OR BARIUM
SULFATE/CN OR TALC/CN
L8 19952 SEA FILE=HCAPLUS ABB=ON L4
L9 132910 SEA FILE=HCAPLUS ABB=ON SILANE# OR POLYSILOXAN?
L10 981203 SEA FILE=HCAPLUS ABB=ON L5 OR SIO2 OR SILICA OR TITANIA OR
(ZINC OR TITANIUM) (W)OXIDE OR L6 OR L7 OR ZNO OT TIO2 OR CLAY
OR DIATOMACEOUS EARTH OR ALUMINA WHITE?
L11 1041167 SEA FILE=HCAPLUS ABB=ON L10 OR TIO2 OR ZNO
L12 28155 SEA FILE=HCAPLUS ABB=ON (L8 OR L9) AND L11
L13 313 SEA FILE=HCAPLUS ABB=ON L12 AND COMPOSITE?(5A) FILL?
L15 69 SEA FILE=HCAPLUS ABB=ON L13 AND (RUBBER OR ELASTOMER?)/SC, SX, A
B, BI
L16 513 SEA FILE=HCAPLUS ABB=ON WHITE(3A) INORG?
L17 22 SEA FILE=HCAPLUS ABB=ON L16 AND (L8 OR L9)
L18 6 SEA FILE=HCAPLUS ABB=ON L17 AND (RUBBER OR ELASTOMER?)/SC, SX, A
B, BI
L19 75 SEA FILE=HCAPLUS ABB=ON L15 OR L18
L21 7255 SEA FILE=HCAPLUS ABB=ON (L8 OR L9) AND (L11 OR L16) AND
(PAINT? OR RESIN#)
L22 129 SEA FILE=HCAPLUS ABB=ON L21 AND COMPOSITE?(5A) FILL?
L23 48 SEA FILE=HCAPLUS ABB=ON L22 AND PARTICLE?
L28 379 SEA FILE=HCAPLUS ABB=ON L8 (L) COMPOSITE?
L29 1609 SEA FILE=HCAPLUS ABB=ON L9 (5A) COMPOSITE?
L30 52 SEA FILE=HCAPLUS ABB=ON (L19 OR L23) AND (L28 OR L29)
L31 31 SEA FILE=HCAPLUS ABB=ON L30 AND PARTICLE?

=> d 131 all 1-31 hitstr

L31 ANSWER 1 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:473021 HCAPLUS
 DN 139:38049
 ED Entered STN: 20 Jun 2003
 TI Silicone **rubber**-coated composite high voltage electrical
 insulator
 IN Ahmed, Farooq; Huda, Faisal; Huda, Seraj Ul; Barr, John
 PA Can.
 SO U.S. Pat. Appl. Publ., 7 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM C08F008-00
 NCL 427387000
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 39, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003113461	A1	20030619	US 2001-14790	20011214
	WO 2003051995	A1	20030626	WO 2002-CA1920	20021216
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,				
	CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,				
	HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,				
	LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,				
	SD, SE, SG, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU,				
	ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,				
	CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,				
	PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,				
	MR, NE, SN, TD, TG				

PRAI US 2001-14790 A2 20011214

OS MARPAT 139:38049

AB The present invention relates to a one-part room temperature vulcanizable organopolysiloxane **rubber** composition which is VOC-free and crosslinks in the presence of moisture to form a coating for the protection of composite high voltage electrodes. The one-part organopolysiloxane **rubber** composition comprises the product which is obtained by mixing the following: (a) 20-60% of one or more polydiorganosiloxane fluids having a viscosity 10-100,000 cP at 25°; (b) 0-40% of a cyclo-organosiloxane; (c) 0-40% of an inorg. extending or non-reinforcing filler; (d) 0.5-15% of an amorphous **SiO2** reinforcing filler; (e) 1-7% of an oximinosilane crosslinking agent; (f) 0.2-3% of an adhesion promoter; (g) 0.02-3% of an organotin salt as a condensation catalyst; and (h) 20-50% of alumina trihydrate, the alumina trihydrate having a median **particle** size of 10 μ m to 30 μ m, containing 65.1 percent Al₂O₃, 34.5% combined H₂O, 0.3% Na₂O, 0.02% CaO, 0.01% **SiO2** and having a sp. gr. of 2.42.

ST silicone **rubber** protective coating high voltage insulator

IT Cyclosiloxanes

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(di-Me; silicone **rubber**-coated composite high voltage elec. insulator)

IT Electric insulators

(high-voltage; silicone **rubber**-coated composite high voltage elec. insulator)

IT Condensation reaction catalysts
(organotin salt; silicone **rubber**-coated composite high voltage elec. insulator)

IT Crosslinking agents
(oximinosilane; silicone **rubber**-coated composite high voltage elec. insulator)

IT Adhesion promoters
Coating materials
(silicone **rubber**-coated composite high voltage elec. insulator)

IT Cyclosiloxanes
Silicone **rubber**, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(silicone **rubber**-coated composite high voltage elec. insulator)

IT 1760-24-3, N-(2-Aminoethyl-3-aminopropyl) trimethoxysilane
RL: MOA (Modifier or additive use); USES (Uses)
(adhesion promoter; silicone **rubber**-coated composite high voltage elec. insulator)

IT **31900-57-9D**, Dimethylsilanediol homopolymer, hydroxy-terminated
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(assumed monomers; silicone **rubber**-coated composite high voltage elec. insulator)

IT 22984-54-9, Methyl tris-(methyl ethyl ketoxime)silane
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent; silicone **rubber**-coated composite high voltage elec. insulator)

IT **7631-86-9, Silica**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(reinforcing **filler**; silicone **rubber**-coated composite high voltage elec. insulator)

IT 301-10-0, Stannous octoate 1067-33-0, Dibutyltindiacetate 4731-77-5, Dibutyltin dioctoate
RL: CAT (Catalyst use); USES (Uses)
(silicone **rubber**-coated composite high voltage elec. insulator)

IT 21645-51-2, Alumina trihydrate, uses
RL: MOA (Modifier or additive use); USES (Uses)
(silicone **rubber**-coated composite high voltage elec. insulator)

IT **31692-79-2**, Hydroxy-terminated dimethyl polysiloxane
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(silicone **rubber**-coated composite high voltage elec. insulator)

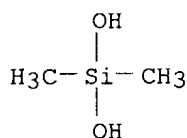
IT **31900-57-9D**, Dimethylsilanediol homopolymer, hydroxy-terminated
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(assumed monomers; silicone **rubber**-coated composite high voltage elec. insulator)

RN 31900-57-9 HCAPLUS
CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

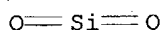
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CRN 1066-42-8

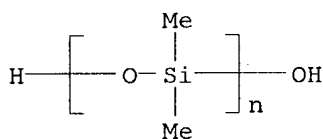
CMF C2 H8 O2 Si



IT 7631-86-9, **Silica**, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (reinforcing **filler**; silicone **rubber**-coated
composite high voltage elec. insulator)
 RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 31692-79-2, Hydroxy-terminated dimethyl **polysiloxane**
 RL: POF (Polymer in formulation); TEM (Technical or engineered material
 use); USES (Uses)
 (silicone **rubber**-coated **composite** high voltage
 elec. insulator)
 RN 31692-79-2 HCAPLUS
 CN Poly[oxy(dimethylsilylene)], α -hydro- ω -hydroxy- (8CI, 9CI)
 (CA INDEX NAME)



L31 ANSWER 2 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:273675 HCAPLUS
 DN 139:399633
 ED Entered STN: 09 Apr 2003
 TI The effect of filler and **silane** content on conversion of
resin-based composite
 AU Halvorson, Rolf H.; Erickson, Robert L.; Davidson, Carel L.
 CS 3M Dental Products, St Paul, MN, 55144-1000, USA
 SO Dental Materials (2003), 19(4), 327-333
 CODEN: DEMAEP; ISSN: 0109-5641
 PB Elsevier Science B.V.
 DT Journal
 LA English
 CC 63-7 (Pharmaceuticals)
 AB This study examines the influence of filler loading and **silane**
 content on the conversion of photoactivated, **resin**-based
 composites as determined using Fourier transform IR spectroscopy (FTIR).
 Zirconia/**silica** filler was processed with a **silane**
 coupling agent (γ -methacryloxypropyltrimethoxysilane) to achieve a

range of **silane**-to-filler compns. Treated fillers were compounded with a photoactivated BisGMA/TEGDMA **resin** to yield a series of pastes all containing 72% total solids. Diffuse reflectance FTIR was used to characterize methacrylate unsatn. of the **silane** on the filler **particles** while paste conversion was determined using transmission FTIR. A **resin** matrix conversion was determined by adjusting the paste conversion for **silane** unsatn. Two addnl. series of pastes were compounded to achieve variable filler-to-**resin** ratios using non-treated filler and filler processed with 8% **silane**. Paste conversion was determined using transmission FTIR. Pastes compounded from fillers containing variable percent **silane** demonstrated linearly decreasing conversion ($R^2=0.986$) with increasing **silane** content and ranged from 52.7 to 62.8%. Adjusting paste conversion for **silane** unsatn. yielded similar **resin** matrix conversion for all cured pastes ($65.1\pm0.8\%$). Pastes compounded with increasing filler-to-**resin** ratios had progressively decreasing conversion. Correcting for **silane** unsatn. suggests this effect was independent of whether the filler was **silane**-treated or not. Composite **resin** matrix conversion as determined via FTIR can be underestimated by the presence of unreacted methacrylate from **silane** on the filler. A corrected **resin** matrix conversion can be estimated by adjusting for **silane** unsatn. Addnl., increasing filler-to-**resin** ratio progressively decreases conversion independent of the presence of **silane** on the filler.

ST zirconia **silica silane** dental **composite**

IT Dental materials and appliances

(**composites**; effect of filler and **silane** content on conversion of **resin**-based composite)

IT 2530-85-0, γ -Methacryloxypropyltrimethoxysilane

RL: MOA (Modifier or additive use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(effect of filler and **silane** content on conversion of **resin**-based composite)

IT 109-16-0, TEGDMA 1314-23-4, Zirconia, biological studies 1565-94-2, BisGMA 7631-86-9, **Silica**, biological studies

RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(effect of filler and **silane** content on conversion of **resin**-based composite)

RE.CNT 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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on substrates. The interfacial interactions in polymeric composites 1993,
P169 HCAPLUS

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composites 1988, P17 HCAPLUS
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- IT 7631-86-9, **Silica**, biological studies
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES
(Uses)
(effect of filler and **silane** content on conversion of
resin-based composite)
- RN 7631-86-9 HCAPLUS
- CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L31 ANSWER 3 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:925338 HCAPLUS
DN 138:5649
ED Entered STN: 06 Dec 2002
TI Composite **particles**, and tread **rubber** composition,
paint and resin compositions using the same
IN Hayashi, Kazuyuki; Morii, Hiroko; Iwasaki, Keisuke; Ohsugi, Mineko;
Shimohata, Yusuke
PA Toda Kogyo Corporation, Japan
SO Eur. Pat. Appl., 108 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C09C001-04
ICS C09C001-30; C09C001-36
CC 42-6 (Coatings, Inks, and Related Products)
Section cross-reference(s): 39
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1262528	A2	20021204	EP 2002-253414	20020515
	EP 1262528	A3	20030115		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002338846	A2	20021127	JP 2001-146940	20010516
	JP 2003147228	A2	20030521	JP 2001-348147	20011114
	JP 2003160744	A2	20030606	JP 2001-360293	20011127
PRAI	JP 2001-146940	A	20010516		
	JP 2001-348147	A	20011114		
	JP 2001-360293	A	20011127		
AB	Composite particles which have an average particle diameter of from 0.001 to 12.0 μ m, and which comprise: (a) white inorg. core particles ; (b) a gluing agent-coating layer provided on at least a part of the surface of said white inorg. core particles ; and (c) a black pigment coat which is composed of carbon black, and/or aniline black and which is provided on at least a part of the gluing agent-coating layer in an amount of from 1 to 500 parts by weight per 100 parts by weight of said white inorg. core particles . The coating layer (i) comprising at least one compound selected from hydroxides of aluminum, oxides of aluminum, hydroxides of silicon and oxides of silicon, is disposed between the surface of the white inorg. core particles (a) and the gluing agent-coating layer (b). The white inorg. core particles are anhydrous silicic acid powder, hydrous silicic acid powder and silicate powder, silica gel, diatomaceous earth powder, clay, calcium carbonate, barium sulfate, talc or alumina white.				
ST	coating pigment composite particle prepn				
IT	Carbon black, uses				
	Clays, uses				
	Diatomite				
	Silica gel, uses				
	Silicates, uses				
	RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)				
	(in preparation of composite particles for tread rubber composition, paint and resin compns.)				
IT	Fatty acids, uses				
	Polysiloxanes , uses				
	RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)				
	(in preparation of composite particles for tread rubber composition, paint and resin compns.)				
IT	Paints				
	Pigments, nonbiological				
	(preparation of composite particles for tread rubber composition, paint and resin compns.)				
IT	Rubber , uses				
	RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)				
	(preparation of composite particles for tread rubber composition, paint and resin compns.)				
IT	Fatty acids, uses				
	RL: PEP (Physical, engineering or chemical process); PYP (Physical				

process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(salts; in preparation of composite **particles** for tread **rubber** composition, paint and resin compns.)

IT 471-34-1, Calcium carbonate, uses 1314-13-2, Zinc oxide, uses 1343-98-2, Silicic acid 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 7727-43-7, Barium sulfate 13007-86-8, Aniline black 13463-67-7, Titania, uses 14807-96-6, Talc, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(in preparation of composite **particles** for tread **rubber** composition, paint and resin compns.)

IT 557-04-0, Magnesium stearate 1592-23-0, Calcium stearate
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(in preparation of composite **particles** for tread **rubber** composition, paint and resin compns.)

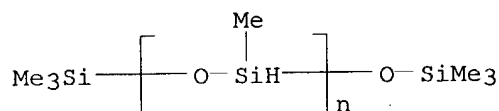
IT 780-69-8, Phenyl triethoxysilane 919-30-2, γ -Aminopropyl triethoxysilane 1112-39-6, Dimethyl dimethoxysilane 2031-67-6, Methyl triethoxysilane 4420-74-0, γ -Mercaptopropyl trimethoxysilane
26403-67-8, TSF484
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(in preparation of **composite particles** for tread **rubber** composition, paint and resin compns.)

IT **26403-67-8, TSF484**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(in preparation of **composite particles** for tread **rubber** composition, paint and resin compns.)

RN 26403-67-8 HCAPLUS
CN Poly[oxy(methylsilylene)], α -(trimethylsilyl)- ω -[(trimethylsilyl)oxy]- (9CI) (CA INDEX NAME)



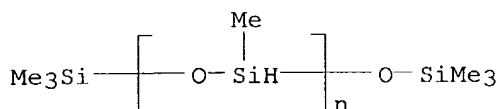
L31 ANSWER 4 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:901036 HCAPLUS
DN 137:385847
ED Entered STN: 27 Nov 2002
TI Black **composite filling** materials and tread **rubber** compositions therewith
IN Hayashi, Kazuyuki; Shimohata, Yusuke; Osugi, Mineko; Morii, Hiroko
PA Toda Kogyo Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09C001-30

Applicants

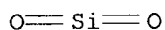
ICS B60C001-00; C08K009-06; C08L021-00; C09C003-12
 CC 39-13 (Synthetic **Elastomers** and Natural **Rubber**)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002338846	A2	20021127	JP 2001-146940	20010516
	US 2003105213	A1	20030605	US 2002-142946	20020513
	EP 1262528	A2	20021204	EP 2002-253414	20020515
	EP 1262528	A3	20030115		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	CN 1385475	A	20021218	CN 2002-119921	20020516
PRAI	JP 2001-146940	A	20010516		
	JP 2001-348147	A	20011114		
	JP 2001-360293	A	20011127		
AB	Title materials, showing high dispersibility, are composite SiO₂ particles with average diameter of 0.001-0.5 μ m and consisting of SiO₂ , alkoxysilane and/or polysiloxane coverings, and 1-103% (based on 100 parts SiO₂) carbon black. A composition containing SBR 100, S 1.8, and 0.023- μ m composite filler (consisting of SiO₂ , 0.78% TSF 484, and 33.11% carbon black) 50 parts was vulcanized at 160° for 20 min to form a test piece with resistivity 3.6 + 104 Ω -cm, color deviation 4.2, and wear resistance 106%; vs., 2.8 + 102, 5.3, and 100, resp., using carbon black instead of the black composite.				
ST	tire tread rubber black composite filler dispersibility; silica carbon black polysiloxane composite filler rubber tread				
IT	Silanes RL: TEM (Technical or engineered material use); USES (Uses) (alkoxy; carbon black- and polysiloxane-covered SiO₂ composite fillers for tread rubbers for light and wear resistance)				
IT	Fillers (carbon black- and polysiloxane-covered SiO₂ composite fillers for tread rubbers for light and wear resistance)				
IT	Styrene-butadiene rubber, uses RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (carbon black- and polysiloxane-covered SiO₂ composite fillers for tread rubbers for light and wear resistance)				
IT	Carbon black, uses Polysiloxanes, uses RL: TEM (Technical or engineered material use); USES (Uses) (carbon black- and polysiloxane-covered SiO₂ composite fillers for tread rubbers for light and wear resistance)				
IT	Fatty acids, uses RL: TEM (Technical or engineered material use); USES (Uses) (salts, treating agents for black composite particles; carbon black- and polysiloxane-covered SiO₂ composite fillers for tread rubbers for light and wear resistance)				
IT	Tires (treads; carbon black- and polysiloxane-covered SiO₂ composite fillers for tread rubbers for light and				

- wear resistance)
- IT Coupling agents
(treating agents for black **composite particles**;
carbon black- and **polysiloxane**-covered **SiO2**
composite fillers for tread rubbers for light and
wear resistance)
- IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(treating agents for black **composite particles**;
carbon black- and **polysiloxane**-covered **SiO2**
composite fillers for tread rubbers for light and
wear resistance)
- IT 26403-67-8, TSF 484
RL: TEM (Technical or engineered material use); USES (Uses)
(TSF 484; carbon black- and **polysiloxane**-covered **SiO2**
composite fillers for tread rubbers for light and
wear resistance)
- IT 780-69-8, Phenyltriethoxysilane 1185-55-3, Methyltrimethoxysilane
2031-67-6, Methyltriethoxysilane 7631-86-9, **Silica**,
uses
RL: TEM (Technical or engineered material use); USES (Uses)
(carbon black- and **polysiloxane**-covered **SiO2**
composite fillers for tread rubbers for light and
wear resistance)
- IT 9003-55-8
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(styrene-butadiene **rubber**, carbon black- and
polysiloxane-covered **SiO2 composite**
fillers for tread rubbers for light and wear resistance)
- IT 1343-98-2, Silicon hydroxide 1344-28-1, Alumina, uses 10043-01-3,
Aluminum sulfate 11138-49-1, Sodium aluminate 21645-51-2, Aluminum
hydroxide, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(treating agent for **SiO2**; carbon black- and
polysiloxane-covered **SiO2 composite**
fillers for tread rubbers for light and wear resistance)
- IT 557-04-0, Magnesium stearate 1592-23-0, Calcium stearate 2530-85-0,
3-Methacryloxypropyltrimethoxysilane
RL: TEM (Technical or engineered material use); USES (Uses)
(treating agents for black **composite particles**;
carbon black- and **polysiloxane**-covered **SiO2**
composite fillers for tread rubbers for light and
wear resistance)
- IT 26403-67-8, TSF 484
RL: TEM (Technical or engineered material use); USES (Uses)
(TSF 484; carbon black- and **polysiloxane**-covered **SiO2**
composite fillers for tread rubbers for light and
wear resistance)
- RN 26403-67-8 HCAPLUS
CN Poly[oxy(methylsilylene)], α -(trimethylsilyl)- ω -
[(trimethylsilyl)oxy]- (9CI) (CA INDEX NAME)



IT 7631-86-9, Silica, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (carbon black- and polysiloxane-covered SiO₂
composite fillers for tread rubbers for light and
 wear resistance)
 RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 5 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:516686 HCAPLUS
 DN 137:83708
 ED Entered STN: 11 Jul 2002
 TI Dental **composite** materials containing **silica**
filler
 IN Jia, Weitao; Jin, Shuhua
 PA Jenerica/Pentron Incorporated, USA
 SO U.S., 4 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM A61F002-00
 NCL 523113000
 CC 63-7 (Pharmaceuticals)
 Section cross-reference(s): 38
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6417246	B1	20020709	US 2000-660111	20000912
PRAI	US 1999-155292P	P	19990921		

AB A polymerizable dental composition comprises (i) a polymerizable **resin** composition, and (ii) a filler composition comprising a bound, nanostructured colloidal **silica**. **Silica** is in the form of **particles** having their largest dimension in the range of about 10-50 nm. For example, a base **resin** mixture was prepared, comprising EBPDMA and PCDMA in a ratio of 70:30 by weight, and further comprising 0.2 weight% of camphorquinone and 0.4 weight % of DEAEMA.

Elongated,
 bound colloidal **silica** in the form of 20 weight% methanol solution (MA-ST-UP) was blended with the above base **resin** mixture so as to provide 0-20 weight% of the **silica**. Some **silica** was silanated by treatment with 10 weight% γ -(methacryloyloxy)propyl trimethoxy **silane** based on the total amount of **silica**. After stirring with the **silica**/base **resin** mixture for an hour, the methanol was removed under vacuum.

ST dental **composite** polymerizable **resin** colloidal **silica** filler

IT Polycarbonates, biological studies
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (acrylic; dental composites containing polymerizable **resins** and
 colloidal **silica** filler)

IT Dental materials and appliances
 (composites; dental composites containing polymerizable **resins**
 and colloidal **silica** filler)

IT **Particle size**
 (filler; dental **composites** containing polymerizable
resins and colloidal **silica** filler)

IT Dental materials and appliances
 (fillings; dental **composites** containing polymerizable
resins and colloidal **silica** filler)

IT Acrylic polymers, biological studies
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (polycarbonate-; dental composites containing polymerizable **resins**
 and colloidal **silica** filler)

IT Dental materials and appliances
 (**resins**; dental composites containing polymerizable
resins and colloidal **silica** filler)

IT **Silanes**
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (**silica** treated with; dental **composites** containing
 polymerizable **resins** and colloidal **silica** filler)

IT **7631-86-9, Silica**, biological studies
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (colloidal; dental composites containing polymerizable **resins** and
 colloidal **silica** filler)

IT 105-16-8, N,N-Diethylaminoethyl methacrylate 41637-38-1, Ethoxylated
 bisphenol A dimethacrylate
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (dental composites containing polymerizable **resins** and colloidal
silica filler)

IT 2530-85-0, γ -(Methacryloyloxy)propyl trimethoxy **silane**
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (**silica** treated with; dental **composites** containing
 polymerizable **resins** and colloidal **silica** filler)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

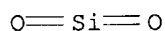
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- (5) Kuhlman; US 4649165 A 1987 HCAPLUS
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- (13) Waknine; US 5276068 A 1994 HCAPLUS
- (14) Waknine; US 5444104 A 1995 HCAPLUS

IT **7631-86-9, Silica**, biological studies
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (colloidal; dental composites containing polymerizable **resins** and
 colloidal **silica** filler)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 6 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:169156 HCAPLUS
 DN 136:201908
 ED Entered STN: 08 Mar 2002
 TI Composite **particles**, process for producing the same, and pigment, paint and resin composition using the same
 IN Hayashi, Kazuyuki; Ohsugi, Mineko; Iwasaki, Keisuke; Morii, Hiroko
 PA Toda Kogyo Corporation, Japan
 SO Eur. Pat. Appl., 185 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM C09C003-12
 ICS C09C003-00
 CC 42-6 (Coatings, Inks, and Related Products)
 FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1184426	A2	20020306	EP 2001-307384	20010830
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	CN 1342731	A	20020403	CN 2001-131101	20010830
	JP 2002356625	A2	20021213	JP 2001-262297	20010830
PRAI	JP 2000-265758	A	20000901		
	JP 2001-101082	A	20010330		
	JP 2001-170199	A	20010605		
AB	Composite particles which have an average particle diameter of from 0.001 to 10.0 μm , comprising: (i) white inorg . particles as core particles (e.g., TiO_2); (ii) a gluing agent coating layer provided on the surface of the white inorg. particles (e.g., triethoxymethylsilane); and (iii) an organic pigment coat provided on the gluing agent coating layer in an amount of from 1 to 500 parts based on 100 parts of the white inorg. particles . The composite particles may be used in a paint or a rubber or resin composition				
ST	composite particle pigment white inorg colored org				
IT	Polysiloxanes , uses RL: TEM (Technical or engineered material use); USES (Uses) (Me hydrogen; composite particles , process for producing the same, and pigment, paint and resin composition using the same)				
IT	Alkyd resins RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (amino-containing; composite particles , process for producing the same, and pigment, paint and resin composition using the same)				
IT	Coupling agents Paints Pigments, nonbiological (composite particles , process for producing the same, and pigment, paint and resin composition using the same)				

IT Aminoplasts
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (composite **particles**, process for producing the same, and pigment, paint and resin composition using the same)

IT **Polysiloxanes**, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (composite **particles**, process for producing the same, and pigment, paint and resin composition using the same)

IT Mica-group minerals, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (pearl; composite **particles**, process for producing the same, and pigment, paint and resin composition using the same)

IT 9002-86-2, 103EP8D 9003-08-1, S 695 34215-82-2, S-118
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (composite **particles**, process for producing the same, and pigment, paint and resin composition using the same)

IT 780-69-8, Phenyl triethoxysilane 919-30-2, Aminopropyl triethoxysilane 1112-39-6, Dimethyl dimethoxysilane 1314-13-2, Zinc oxide, uses 1344-09-8, Water glass 2031-67-6, TSL8123 7631-86-9, Silica, uses 7727-43-7, Bariumsulfate 9002-89-5, Polyvinyl alcohol 9004-73-3, Poly[oxy(methylsilylene)] 10043-01-3, Aluminum sulfate 11138-49-1, Sodium aluminate 13463-67-7, Titanium oxide, uses 49718-23-2, Methylsilanediol homopolymer 61417-49-0, Isopropyltriisostearoyl titanate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (composite **particles**, process for producing the same, and pigment, paint and resin composition using the same)

IT 574-93-6D, Phthalocyanine, derivs.
 RL: TEM (Technical or engineered material use); USES (Uses)
 (pigment; composite **particles**, process for producing the same, and pigment, paint and resin composition using the same)

L31 ANSWER 7 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:113239 HCAPLUS

DN 136:168808

ED Entered STN: 12 Feb 2002

TI π -Conjugated polymer-inorganic **particle** composites with excellent thermal stability and electric conductivity and **rubber** compositions containing them

IN Maruyama, Tsukasa; Kirino, Yoshiaki; Ishikawa, Kazunori

PA Yokohama Rubber Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C08L101-00

ICS C08K005-42; C08K009-06; C08L021-00

CC 39-9 (Synthetic **Elastomers** and Natural **Rubber**)

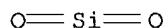
Section cross-reference(s): 37

FAN.CNT 1

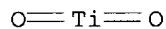
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002047429	A2	20020212	JP 2000-238888	20000802
PRAI	JP 2000-238888		20000802		
AB	The composites, giving tires with good wet grip properties and low cost, contain inorg. particles , π -conjugated polymers containing organic				

- acid dopants, and **silane** compds. selected from
 $R_{23}-n(R_{10})nSiXNHR_3$, $R_{23}-n(R_{10})nSiXSaXSi(OR_1)nR_{23}-n$, and $R_{23}-n(R_{10})nSiXSbR_4$
 $(R_1 = Me, Et; R_2 = alkyl, aryl; R_3 = H, alkyl, aryl; X = alkylene; n =$
 $1-3; a = 2-6; b = 1-6)$. Thus, a composition containing 137.5 parts Nipol 1712
(SBR) and 80 parts a polyaniline-**SiO₂** composite prepared from
aniline 5, **SiO₂** treated with 3-(N-phenyl)aminopropyltrimethoxysi
lane 100, and HCl 5.6 g was vulcanized to give a test piece showing
tan δ 0.431 at 0°, elec. conductivity $7.8 + 10^{-5}$ S/cm, surface
resistivity $8.2 + 10^5 \Omega/\text{box.}$, and good abrasion resistance.
- ST elec cond conjugated polymer composite; antistaticity polyaniline
silica composite filler SBR; thermal stability
polyaniline composite **rubber** tire; phenylaminopropyltrimethoxysi
lane coupler treatment **silica** polypyrrole composite
- IT Polyanilines
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(HCl-doped; composites of elec. conductive conjugated polymers and
inorg. **particles** treated with polymerizable **silane**
couplers for antistatic **rubber** compns.)
- IT Styrene-butadiene **rubber**, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(Nipol 1712; composites of elec. conductive conjugated polymers and
inorg. **particles** treated with polymerizable **silane**
couplers for antistatic **rubber** compns.)
- IT Conducting polymers
(composites of elec. conductive conjugated polymers and inorg.
particles treated with polymerizable **silane** couplers
for antistatic **rubber** compns.)
- IT **Rubber**, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(composites of elec. conductive conjugated polymers and inorg.
particles treated with polymerizable **silane** couplers
for antistatic **rubber** compns.)
- IT Coupling agents
(**silane**; **composites** of elec. conductive conjugated
polymers and inorg. **particles** treated with polymerizable
silane couplers for antistatic **rubber** compns.)
- IT Antistatic agents
(π -conjugated polymers; composites of elec. conductive conjugated
polymers and inorg. **particles** treated with polymerizable
silane couplers for antistatic **rubber** compns.)
- IT 25233-30-1P, Polyaniline
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(HCl-doped; composites of elec. conductive conjugated polymers and
inorg. **particles** treated with polymerizable **silane**
couplers for antistatic **rubber** compns.)
- IT 7631-86-9, Nipsil VN 3, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)
(colloidal, treated with **silane** couplers; **composites**
of elec. conductive conjugated polymers and inorg. **particles**
treated with polymerizable **silane** couplers for antistatic
rubber compns.)
- IT 13463-67-7, Titanium oxide, uses
RL: TEM (Technical or engineered material use); USES (Uses)

- (composites of elec. conductive conjugated polymers and inorg. **particles** treated with polymerizable **silane** couplers for antistatic **rubber** compns.)
- IT 1760-24-3, 3-(2-Aminoethyl)aminopropyltrimethoxysilane 3068-76-6,
3-(N-Phenyl)aminopropyltrimethoxysilane 4420-74-0, 3-
Mercaptopropyltrimethoxysilane 40372-72-3, Bis[3-
(triethoxysilyl)propyl]tetrasulfide
RL: TEM (Technical or engineered material use); USES (Uses)
(coupler; composites of elec. conductive conjugated polymers and inorg. **particles** treated with polymerizable **silane** couplers for antistatic **rubber** compns.)
- IT 7647-01-0, Hydrochloric acid, uses 27176-87-0, Dodecylbenzenesulfonic acid
RL: TEM (Technical or engineered material use); USES (Uses)
(dopant; composites of elec. conductive conjugated polymers and inorg. **particles** treated with polymerizable **silane** couplers for antistatic **rubber** compns.)
- IT 9003-55-8
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(styrene-butadiene **rubber**, Nipol 1712; composites of elec. conductive conjugated polymers and inorg. **particles** treated with polymerizable **silane** couplers for antistatic **rubber** compns.)
- IT 7631-86-9, Nipsil VN 3, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(colloidal, treated with **silane** couplers; **composites** of elec. conductive conjugated polymers and inorg. **particles** treated with polymerizable **silane** couplers for antistatic **rubber** compns.)
- RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



- IT 13463-67-7, Titanium oxide, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(composites of elec. conductive conjugated polymers and inorg. **particles** treated with polymerizable **silane** couplers for antistatic **rubber** compns.)
- RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



- L31 ANSWER 8 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:899286 HCAPLUS
DN 137:206401
ED Entered STN: 13 Dec 2001
TI Effect of filler fraction and filler surface treatment on wear of microfilled composites
AU Lim, Bum-Soon; Ferracane, Jack L.; Condon, John R.; Adey, Jerry D.

- CS College of Dentistry, Department of Dental Biomaterials, Seoul National University, Seoul, S. Korea
- SO Dental Materials (2002), 18(1), 1-11
CODEN: DEMAEP; ISSN: 0109-5641
- PB Elsevier Science Ltd.
- DT Journal
- LA English
- CC 63-7 (Pharmaceuticals)
- AB The aim of this study was to determine the effect of filler content and surface treatment on the wear of microfilled composites. Four microfilled **composites** with different **filler** contents (A=20, B=25, C=30, and D=35 volume %) were made with a light-cured **resin** (Bis-GMA/UDMA/TEGDMA). The surface treatment of the colloidal **silica** in each varied: F=functional **silane**, NF=non-functional **silane**, U=untreated. Silux Plus served as a control. Specimens were made in steel molds and cured in a light curing unit Triad II (40 s/side). Abrasion and attrition wear were evaluated in vitro in a wear tester (OHSU oral wear simulator) with an abrasive slurry (poppy seeds+PMMA) and a human enamel antagonist. The average of five specimens was computed and compared using a ANOVA/Tukey's test at $P \leq 0.05$. The surface of the wear patterns and the distribution of **filler particles** were examined using a scanning electron microscope and digital imaging. As filler volume increased, wear was reduced regardless of filler treatment. Amts. of wear for specimens C and D were significantly lower than specimens A and B. **Composites** with functional **silane** treated microfiller (Group F) produced significantly less wear than those with non-functional microfiller (Group NF) at 30 and 35 volume %, and less than the untreated microfiller (Group U) at 30 volume %. SEM of specimens of group NF showed large filler agglomerates (size $>1 \mu\text{m}$) in the **resin** matrix, while specimens of group F and U showed fewer agglomerates. Digital imaging anal. revealed small filler clusters (size $\leq 1 \mu\text{m}$) in the **resin** matrix of all specimens. Wear resistance of microfilled **composites** is enhanced by higher **filler** vols. irres. of surface treatment, but good filler/matrix adhesion is needed to minimize wear.
- ST **filler** dental **composite** surface wear
- IT Dental materials and appliances
(**composites**; effect of **filler** fraction and **filler** surface treatment on wear of microfilled composites)
- IT Human
Surface treatment
(effect of filler fraction and filler surface treatment on wear of microfilled composites)
- IT Dental materials and appliances
(fillings; effect of filler fraction and filler surface treatment on wear of microfilled composites)
- IT Wear
(resistance; effect of filler fraction and filler surface treatment on wear of microfilled composites)
- IT 7631-86-9, OX 50, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(colloidal; effect of filler fraction and filler surface treatment on wear of microfilled composites)
- IT 109-16-0, TEGDMA 1565-94-2, Bis-GMA 72869-86-4, UDMA
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);

USES (Uses)

(effect of filler fraction and filler surface treatment on wear of microfilled composites)

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
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- (22) Vankerckhoven, H; J Dent Res 1981, V60, P1957 HCAPLUS
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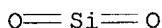
IT 7631-86-9, OX 50, processes

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(colloidal; effect of filler fraction and filler surface treatment on wear of microfilled composites)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 9 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:621757 HCAPLUS

DN 135:260906

ED Entered STN: 28 Aug 2001

TI Some organic-inorganic composites, illustrative simulations on elastomer reinforcement, and an overview of symposium contributions

AU Mark, J. E.

CS Department of Chemistry and the Polymer Research Center, The University of Cincinnati, Cincinnati, OH, 45221-0172, USA

SO Materials Research Society Symposium Proceedings (2001), 661(Filled and Nanocomposite Polymer Materials), KK1.1/1-KK1.1/14
CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal; General Review

- LA English
 CC 57-0 (Ceramics)
 Section cross-reference(s): 38, 39
- AB A review, with refs., first describing organic-inorg. composites which have been prepared using techniques similar to those employed in the new sol-gel approach to ceramics. Organometallics such as silicates, titanates, and aluminates are hydrolyzed in the presence of polymer chains (for example **polysiloxanes** and polyamides) that typically contain hydroxyl groups. The functional groups are used to bond the polymer chains onto the **silica**, **titania**, or alumina being formed in the hydrolysis, thus forming novel organic-inorg. composites. When the polymer chains are present in excess, they constitute the continuous phase, with the ceramic-type material appearing as reinforcing **particles**. When present in smaller amts., the polymer is dispersed in the continuous ceramic phase, to give a polymer-modified ceramic. Under some conditions, bicontinuous systems are obtained. The second part addresses one of the major unsolved problems in the area of rubberlike elasticity, specifically a mol. understanding of the mechanisms by which the mech. properties of **elastomers** are improved by the incorporation of particulate fillers such as carbon black or **silica**. Theor. work on the reinforcement thus obtained is illustrated by some Monte Carlo calcns. on one aspect of the problem, namely excluded volume effects of the filler **particles** on the network chain configurations. The resulting end-to-end distributions are then used in standard mol. models to generate stress-strain isotherms, which document the nature of the reinforcement obtained. The final part provides an overview of the specific papers presented at this symposium, and attempts to place them into the broad general context of "Filled and Nanocomposite Polymer Materials".
- ST org inorg hybrid composite material review; nanocomposite org inorg hybrid material review; ceramic reinforced polymer hybrid material review; polymer modified ceramic hybrid material review
- IT Hybrid organic-inorganic materials
 Nanocomposites
 (ceramic-polymer; organic-inorg. hybrid composites and modeling of mech. properties of **elastomers** reinforced by ceramic)
- IT **Rubber**, processes
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (ceramic-reinforced; organic-inorg. hybrid composites and modeling of mech. properties of **elastomers** reinforced by ceramic)
- IT Carbon black, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (**filler**, hybrid **composites**; organic-inorg. hybrid **composites** and modeling of mech. properties of **elastomers** reinforced by ceramic)
- IT Ceramics
 (hybrid composites; organic-inorg. hybrid composites and modeling of mech. properties of **elastomers** reinforced by ceramic)
- IT Polyamides, processes
 Polymers, processes
Polysiloxanes, processes
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (hybrid **composites**; organic-inorg. hybrid composites and modeling of mech. properties of **elastomers** reinforced by ceramic)
- IT 1344-28-1, Aluminum oxide (Al₂O₃), processes 13463-67-7,
 Titanium oxide (TiO₂), processes

RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(composites, hybrid; organic-inorg. hybrid composites and modeling of mech. properties of **elastomers** reinforced by ceramic)

IT 7631-86-9, Silica, uses

RL: MOA (Modifier or additive use); USES (Uses)
(**filler**, hybrid **composites**; organic-inorg. hybrid **composites** and modeling of mech. properties of **elastomers** reinforced by ceramic)

RE.CNT 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD

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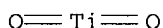
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IT 13463-67-7, **Titanium oxide (TiO₂)**, processes

RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (composites, hybrid; organic-inorg. hybrid composites and modeling of mech. properties of **elastomers** reinforced by ceramic)

RN 13463-67-7 HCAPLUS

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)

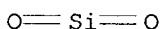


IT 7631-86-9, **Silica**, uses

RL: MOA (Modifier or additive use); USES (Uses) (**filler**, hybrid **composites**; organic-inorg. hybrid **composites** and modeling of mech. properties of **elastomers** reinforced by ceramic)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 10 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:431700 HCAPLUS

DN 136:189267

ED Entered STN: 14 Jun 2001

TI Properties of opaque **resin** composite containing coated and silanized titanium dioxide

AU Yoshida, K.; Taira, Y.; Atsuta, M.

CS Department of Fixed Prosthodontics, Nagasaki University School of Dentistry, Nagasaki, 852-8588, Japan

SO Journal of Dental Research (2001), 80(3), 864-868

CODEN: JDREAF; ISSN: 0022-0345

PB International Association for Dental Research

DT Journal

LA English

CC 63-7 (Pharmaceuticals)

AB Titanium dioxide (**TiO₂**) is mainly used as a pigment in opaque **resin** composites for application to the surface of a metal framework. The hypothesis in this paper is that **particles** of

silica/alumina (SiO₂/Al₂O₃)-coated TiO₂
 treated with a **silane** coupling agent could bond effectively with
resin monomers of opaque **resin** composites. Untreated
TiO₂ was used as the control filler. Compressive and flexural
 strength specimens were prepared by the heat-curing method, because these
 bulk specimens could not be made by the typical photo-curing method. The
 treated composite had significantly higher compressive and flexural
 strengths than the untreated composite after 6 mo' immersion in water.
 SEM of the fractured composite surfaces showed an interface failure
 between **TiO₂** and **resin** for the untreated composite and
 cohesive failure within the **resin** for the treated composite
 after 6 mo' immersion. The light-activated opaque **resin**
 composite containing treated **TiO₂** exhibited significantly higher
 bond strength to a noble dental alloy after 5000 thermal cycles than that
 containing untreated **TiO₂**. Thus, silanized **SiO₂**
 /Al₂O₃-coated **TiO₂** appears to be clin. useful as a
filler of opaque **resin** composites.

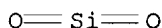
- ST titanium dioxide **silane resin composite**
dental alloy
- IT Dental materials and appliances
(alloys; properties of opaque **resin** composite containing coated
and silanized titanium dioxide)
- IT Dental materials and appliances
(composites; properties of opaque **resin** composite containing
coated and silanized titanium dioxide)
- IT Bending strength
Coating materials
Coating process
Compressive strength
Shear strength
(properties of opaque **resin** composite containing coated and
silanized titanium dioxide)
- IT 2530-85-0, 3-Trimethoxysilylpropylmethacrylate
RL: MOA (Modifier or additive use); USES (Uses)
(properties of opaque **resin** composite containing coated and
silanized titanium dioxide)
- IT 1344-28-1, Alumina, biological studies 7631-86-9, **Silica**
, biological studies 13463-67-7, Titanium dioxide, biological
studies 159835-30-0 172159-20-5, Castwell M.C.12
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
(Physical process); THU (Therapeutic use); BIOL (Biological study); PROC
(Process); USES (Uses)
(properties of opaque **resin** composite containing coated and
silanized titanium dioxide)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

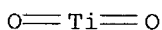
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IT 7631-86-9, Silica, biological studies 13463-67-7
 , Titanium dioxide, biological studies
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC
 (Process); USES (Uses)
 (properties of opaque resin composite containing coated and
 silanized titanium dioxide)
 RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 13463-67-7 HCAPLUS
 CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 11 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:773990 HCAPLUS
 DN 133:343700
 ED Entered STN: 05 Nov 2000
 TI Magnetic recording medium
 IN Hayashi, Kazuyuki; Morii, Hiroko; Kamigaki, Mamoru; Ishitani, Seiji
 PA Toda Kogyo Corp., Japan
 SO Eur. Pat. Appl., 148 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM C09C003-12
 ICS C09C001-24; G11B005-708
 CC 77-8 (Magnetic Phenomena)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1048698	A1	20001102	EP 2000-303434	20000425
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001143241	A2	20010525	JP 1999-326190	19991116
	US 6458453	B1	20021001	US 2000-557881	20000425
	JP 2001014634	A2	20010119	JP 2000-129568	20000428
	JP 2001014635	A2	20010119	JP 2000-129569	20000428
	JP 2001014636	A2	20010119	JP 2000-129570	20000428
PRAI	JP 1999-125109	A	19990430		
	JP 1999-125115	A	19990430		

- JP 1999-125116 A 19990430
 JP 1999-326190 A 19991116
- AB A magnetic recording medium comprising: (a) a nonmagnetic base film; and (b) a magnetic recording layer comprising a binder **resin**, magnetic **particles** and, as a **filler**, black **composite** hematite **particles** which have an average diameter of from 0.08 to 1.0 μm and which comprise: hematite **particles** as core **particles**; a coating layer provided on the hematite **particles**, comprising at least one organosilicon compound selected from: (1) an organosilane compound obtainable from an alkoxysilane compound; (2) a **polysiloxane** or modified **polysiloxane**; and (3) a fluoroalkyl organosilane compound obtainable from fluoroalkylsilane compound; and a carbon black coat provided on said coating layer, in an amount from 1 to 30 parts by weight based on 100 parts by weight of said hematite **particles**.
- ST hematite **particle composite polysiloxane** organosilane recording medium; carbon black coating magnetic recording medium
- IT **Polysiloxanes**, uses
 RL: DEV (Device component use); FMU (Formation, unclassified); TEM (Technical or engineered material use); FORM (Formation, nonpreparative); USES (Uses)
 (Me hydrogen; magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)
- IT Binders
 Coating materials
 Magnetic **particles**
 Magnetic recording materials
 (magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)
- IT Carbon black, properties
 Polyurethanes, properties
 RL: DEV (Device component use); FMU (Formation, unclassified); PRP (Properties); TEM (Technical or engineered material use); FORM (Formation, nonpreparative); USES (Uses)
 (magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)
- IT **Polysiloxanes**, uses
 RL: DEV (Device component use); FMU (Formation, unclassified); TEM (Technical or engineered material use); FORM (Formation, nonpreparative); USES (Uses)
 (magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)
- IT 1317-60-8, Hematite, properties 9003-22-9, Vinyl acetate-vinyl chloride copolymer
 RL: DEV (Device component use); FMU (Formation, unclassified); PRP (Properties); TEM (Technical or engineered material use); FORM (Formation, nonpreparative); USES (Uses)
 (magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)
- IT 9004-73-3, Methylhydrogensiloxane 31692-79-2 31900-57-9, Dimethylsilanediol homopolymer 31900-57-9D, Dimethylsilanediol homopolymer, dimethyl(hydroxyalkyl)silyl-terminated 49718-23-2,

Methylhydrogensiloxane **156048-35-0D**, dimethyl(hydroxyalkyl)silyl-terminated **156048-35-0D**, dimethyl(hydroxyalkyl)silyl-terminated
 RL: DEV (Device component use); FMU (Formation, unclassified); TEM (Technical or engineered material use); FORM (Formation, nonpreparative);
 USES (Uses)

(magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)

IT 78-93-3, Methyl ethyl ketone, formation (nonpreparative) 108-88-3, Toluene, formation (nonpreparative)

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
 (magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)

IT 1112-39-6, Dimethyl dimethoxysilane 1185-55-3, Methyl trimethoxysilane 18230-73-4, Methylethoxysilane 18395-30-7, Isobutyl trimethoxysilane
 RL: FMU (Formation, unclassified); PRP (Properties); TEM (Technical or engineered material use); FORM (Formation, nonpreparative); USES (Uses)

(magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)

IT 108-94-1, Cyclohexanone, reactions 123-86-4, Butyl acetate 544-63-8, Myristic acid, reactions 1302-42-7, Sodium aluminate NaAlO₂ 1344-09-8, Water glass 7429-90-5, Aluminum, reactions **7631-86-9**, Silica, reactions 10043-01-3, Aluminum sulfate

RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)

(magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)

IT 7439-96-5, Manganese, properties

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (2) Minnesota Mining & Mfg; EP 0176368 A 1986
- (3) Toda Kogyo Corp; EP 0825235 A 1998 HCAPLUS
- (4) Toda Kogyo Corp; EP 0913431 A 1999 HCAPLUS
- (5) Toda Kogyo Corp; EP 0957474 A 1999 HCAPLUS

IT **31692-79-2 31900-57-9**, Dimethylsilanediol homopolymer

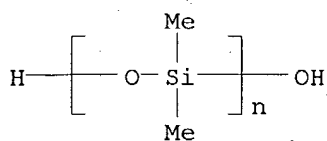
31900-57-9D, Dimethylsilanediol homopolymer, dimethyl(hydroxyalkyl)silyl-terminated **156048-35-0D**, dimethyl(hydroxyalkyl)silyl-terminated

RL: DEV (Device component use); FMU (Formation, unclassified); TEM (Technical or engineered material use); FORM (Formation, nonpreparative);
 USES (Uses)

(magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)

RN 31692-79-2 HCAPLUS

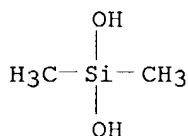
CN Poly[oxy(dimethylsilylene)], α -hydro- ω -hydroxy- (8CI, 9CI)
 (CA INDEX NAME)



RN 31900-57-9 HCAPLUS
 CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

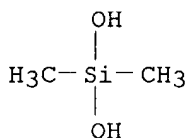
CRN 1066-42-8
 CMF C2 H8 O2 Si



RN 31900-57-9 HCAPLUS
 CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

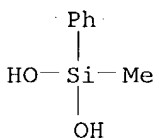
CRN 1066-42-8
 CMF C2 H8 O2 Si



RN 156048-35-0 HCAPLUS
 CN Silanediol, dimethyl-, polymer with methylphenylsilanediol (9CI) (CA INDEX NAME)

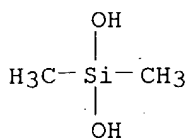
CM 1.

CRN 3959-13-5
 CMF C7 H10 O2 Si

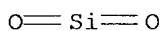


CM 2

CRN 1066-42-8
 CMF C2 H8 O2 Si



IT 7631-86-9, **Silica**, reactions
 RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
 (magnetic recording medium with manganese hematite **composite** and **polysiloxane** and organosilane binder and carbon black coating)
 RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 12 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:723358 HCAPLUS
 DN 133:310593
 ED Entered STN: 13 Oct 2000
 TI Manufacture of plastic lenses coated by epoxy coatings with good dyeability, durability and no interference fringe
 IN Sano, Yoshio
 PA Seiko Epson Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM G02C007-02
 ICS C08F002-00; C08F218-00; C08F218-18; C08F290-04; C09D163-00; G02B001-10; C08F222-12
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 63
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000284237	A2	20001013	JP 1999-95090	19990401
PRAI	JP 1999-95090		19990401		

AB The title lenses such as eyeglass lenses have been coated with a hard coating composition containing (i) **particles** with diameter 1-100 μm of composite oxides of Si, Al, Sn, Sb, Ta, Ce, La, Fe, Zn, W, Zr, In, and Ti, (ii) a hydrolyzable organosilane compound bearing polymerizable group and (iii) multifunctional epoxy compound, where the lenses are molded from the polymerization products of 40-89% (meth)allyl-terminated polyester oligomer of phthalic acid-type compound, 10-59% (meth)allyl-terminated polycarbonate oligomer of dialkylene glycol, and 1-30% unsatd. carboxylic acid [optionally halogen-substituted (except F)] benzyl esters. Optionally, an antireflective film which consists of inorg. substances is provided on the

hard coating. Thus, heating a mixture of 60 g ethylene glycol-isophthalic acid oligomer diallyl ester, 30 g diethylene glycol-based polycarbonate oligomer diallyl ester, 10 g dibenzyl fumarate and 3 g diisopropylperoxy dicarbonate between 2 glass panels from 40° to 90° over 20 h, and annealing at 120° for 2 h gave a plastic lens which was coated with a composition containing methyl Cellosolve-dispersed composite particles of **TiO₂-Fe₂O₃-SiO₂** (20% solids), 1853.4, methanol-dispersed **silica** (30% solids) 225, γ -glycidoxypropyltrimethoxysilane 339, (EtO)₃SiC₃H₆OCOC₃H₆Si(OEt)₃ 264.8, 1,6-hexanediol diglycidyl ether 388.7, MeOH 173, dioxane 502.7 g and other additives to give a coated lens.

- ST epoxy **silane** birefringence compensation coating plastic lens;
allyl terminated oligoester oligocarbonate plastic lens coating;
dyeability durability interference fringe redn plastic lens manuf;
composite metal oxide **particle** epoxy **silane**
coating; organosilicon compd epoxy coating plastic eyeglass lens; eyeglass
lens plastic allylated oligocarbonate oligoester
- IT Oxides (inorganic), uses
RL: MOA (Modifier or additive use); USES (Uses)
(coating filler; manufacture of plastic lenses coated by epoxy coatings with
good dyeability, durability and no interference fringe)
- IT **Polysiloxanes**, uses
Polysiloxanes, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
(Properties); PREP (Preparation); USES (Uses)
(epoxy; manufacture of plastic lenses coated by epoxy coatings with good
dyeability, durability and no interference fringe)
- IT Coating materials
Eyeglass lenses
(manufacture of plastic lenses coated by epoxy coatings with good
dyeability, durability and no interference fringe)
- IT Epoxy **resins**, uses
Epoxy **resins**, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
(Properties); PREP (Preparation); USES (Uses)
(**polysiloxane**-; manufacture of plastic lenses coated by epoxy
coatings with good dyeability, durability and no interference fringe)
- IT 1309-37-1, Iron oxide, uses **7631-86-9, Silica**, uses
13463-67-7, Titanium dioxide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**composite fillers** with other metal oxides; manufacture
of plastic lenses coated by epoxy coatings with good dyeability,
durability and no interference fringe)
- IT 1306-38-3, Cerium dioxide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**composite fillers** with **titanium**
oxide and silicon oxide; manufacture of plastic lenses coated by
epoxy coatings with good dyeability, durability and no interference
fringe)
- IT 16066-38-9, Dipropylperoxy dicarbonate
RL: CAT (Catalyst use); USES (Uses)
(crosslinking catalyst; manufacture of plastic lenses coated by epoxy
coatings with good dyeability, durability and no interference fringe)
- IT 156941-04-7P, Glycerol triglycidyl ether- γ -
glycidoxypropyltrimethoxysilane copolymer
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
(Properties); PREP (Preparation); USES (Uses)
(crosslinking catalyst; manufacture of plastic lenses coated by epoxy

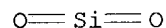
coatings with good dyeability, durability and no interference fringe)

IT 186137-72-4P 186144-24-1P
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); PREP (Preparation); USES (Uses)
 (hard coating; manufacture of plastic lenses coated by epoxy coatings with good dyeability, durability and no interference fringe)

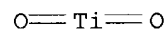
IT 302333-46-6P 302333-49-9P
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (manufacture of plastic lenses coated by epoxy coatings with good dyeability, durability and no interference fringe)

IT 7631-86-9, Silica, uses 13463-67-7, Titanium dioxide, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (composite fillers with other metal oxides; manufacture of plastic lenses coated by epoxy coatings with good dyeability, durability and no interference fringe)

RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 13463-67-7 HCAPLUS
 CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 13 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:161404 HCAPLUS
 DN 132:197728
 ED Entered STN: 10 Mar 2000
 TI Abrasive viscoelastic medium for machining and polishing of metal surface
 IN Gilmore, James Randall; Rhoades, Lawrence J.
 PA Extrude Hone Corporation, USA
 SO PCT Int. Appl., 50 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C09K003-14
 ICS B24B031-116
 CC 56-6 (Nonferrous Metals and Alloys)
 Section cross-reference(s): 57

FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000012648	A1	20000309	WO 1999-US19681	19990825
W: AU, BR, CA, CN, KP, KR, MX, RU				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2341737	AA	20000309	CA 1999-2341737	19990825
AU 9959028	A1	20000321	AU 1999-59028	19990825
EP 1117749	A1	20010725	EP 1999-946666	19990825
EP 1117749	B1	20030604		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, FI
 TW 500794 B 20020901 TW 1999-88114659 19990826
 PRAI US 1998-139642 A 19980826
 WO 1999-US19681 W 19990825

AB Abrasive machining without a sealed working chamber is based on the the use of a viscoelastic abrasive composite behaving as elastically deforming solid in rotary or other cyclic working motion for the strain rates with deformation below the associated compressive stress limit, especially in the presence of an intermittent air gap at the working surface. The preferred viscoelastic abrasive is rheopectic poly(borosiloxane) filled with stiffening agents for increased viscosity, as well as with high loadings of the powdered abrasive, and with a minor amount of plasticizers and lubricants. The **particle** size of dispersed abrasive is nominally 1-2000 μm for machining, and 20-100 μm for polishing, especially of Al alloys. The static viscosity of the composite is nominally 2 + 104 to 8 + 106 cP. The abrasive system is operated in an open chamber under applied strain rates with the associated elastic deformation at 50-99% of total, with the balance of deformation by fluid or plastic flow to promote circulation. Engraved coinage dies forged from tool steel with the surface microroughness of 25 $\mu\text{in.}$ were masked on the design surface with epoxy **resin**, and polished by orbital motion at 25 Hz with: (a) the poly(borosiloxane) **composite filled** with powdered B4C abrasive, for 12 min; and (b) the composite containing dispersed diamond powder of 2 μm size, for 16 min, for the polished surface with 0.2 $\mu\text{in.}$ finish.

ST abrasive viscoelastic composite polishing metal; borosiloxane flexible composite abrasive polishing metal; steel die polishing abrasive viscoelastic composite

IT Machining
 (abrasive; viscoelastic matrix with powdered abrasives for finish machining of metal surface)

IT Garnet-group minerals
 RL: TEM (Technical or engineered material use); USES (Uses)
 (abrasives; viscoelastic matrix with powdered abrasives for machining and polishing of metal)

IT Cast alloys
 RL: DEV (Device component use); USES (Uses)
 (aluminum, polishing of; viscoelastic matrix with powdered abrasives for mech. polishing of cast alloy articles)

IT Wheels
 (automotive, polishing of; viscoelastic matrix with powdered abrasives for mech. polishing of cast alloy wheels)

IT **Polysiloxanes, uses**
Polysiloxanes, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (boroxane-, **composites** with; viscoelastic matrix with powdered abrasive for machining and polishing of metal)

IT Viscoelastic materials
 (composites; viscoelastic matrix with powdered abrasive for machining and polishing of metal)

IT Dies
 (polishing of; viscoelastic matrix with powdered abrasives for mech. polishing of steel dies)

IT Abrasives
 (powdered, composites with; viscoelastic matrix with powdered abrasives for machining and polishing of metal)

IT Boroxanes
 Boroxanes

RL: TEM (Technical or engineered material use); USES (Uses)
 (siloxane-, composites with; viscoelastic matrix with powdered abrasive
 for machining and polishing of metal)

IT Aluminum alloy, base
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (polishing of; viscoelastic matrix with powdered abrasives for mech.
 polishing of alloy articles)

IT 1344-28-1, Alumina, uses **7631-86-9, Silica**, uses
 7782-40-3, Diamond, uses 12033-89-5, Silicon nitride, uses 12069-32-8,
 Boron carbide (B4C) 12070-12-1, Tungsten carbide
 RL: TEM (Technical or engineered material use); USES (Uses)
 (abrasives; viscoelastic matrix with powdered abrasives for machining and
 polishing of metal)

IT 12597-69-2, Steel, uses
 RL: DEV (Device component use); USES (Uses)
 (polishing of; viscoelastic matrix with powdered abrasives for mech.
 polishing of steel dies)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
 (1) Extrude Hone Ltd; EP 0106507 A 1984
 (2) Rhoades, L; US 5125191 A 1992

IT **7631-86-9, Silica**, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (abrasives; viscoelastic matrix with powdered abrasives for machining and
 polishing of metal)

RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L31 ANSWER 14 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:47448 HCAPLUS
 DN 132:313641
 ED Entered STN: 20 Jan 2000
 TI Fracture resistance of experimental glass and glass-ceramic **resin**
 composites
 AU Jones, D. W.; Rizkalla, A. S.; Archibald, T.; Hall, G. C.
 CS Div. Biomaterials, Dalhousie University, Halifax, NS, B3H 3J5, Can.
 SO Bioceramics, Proceedings of the International Symposium on Ceramics in
 Medicine (1999), 12, 445-448
 CODEN: BPCMFx
 PB World Scientific Publishing Co. Pte. Ltd.
 DT Journal
 LA English
 CC 63-7 (Pharmaceuticals)
 AB Exptl. composites containing bioactive glass, glass-ceramic and bioactive low
 temperature fired inorg. fillers (**SiO₂-CaO-P₂O₅-Na₂O**) were synthesized
 by wet chemical Two chemical activated dimethacrylate matrix **resins**
 were used together with 0 or 30% low mol. weight hydrophilic monomer.
Composites contained 70 or 65 (wt%) **filler**
particles with and without **silane** treatment. Fracture
 toughness (K_{Ic}) (n=5) was performed on specimens following storage in
 either SBF or distilled water @ 37°C for 30 days. Fracture toughness
 discriminated between glass-ceramic, glass and low temperature inorg. filler
 (P<

0.001). Mean values for **silane** treated glass-ceramic ranged from 1.56 ± 0.41 MPa.m0.5 to 0.4 ± 0.18 MPa.m0.5 for the none **silane** treated **composite**. In contrast values for the glass filler were from 1.39 ± 0.27 MPa.m0.5 for the **silane** treated to 0.42 ± 0.03 MPa.m0.5 for the non-**silane** treated. Mean fracture toughness values for low temperature fired inorg. constituent ranged from 1.03 ± 0.19 MPa.m0.5 for **silane** treated and 0.36 ± 0.28 MPa.m0.5 for non-**silane** treated. No effect due to storage in SBF or distilled water was found.

ST fracture resistance glass ceramic **resin** composite
 IT Prosthetic materials and Prosthetics
 (bioactive glass; fracture resistance of exptl. glass and glass-ceramic **resin** composites)
 IT Biological materials
 Glass ceramics
 (fracture resistance of exptl. glass and glass-ceramic **resin** composites)
 IT **Silanes**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fracture resistance of exptl. glass and glass-ceramic **resin** composites)
 IT Fillers
 (inorg.; fracture resistance of exptl. glass and glass-ceramic **resin** composites)
 IT Fracture (materials)
 (resistance; fracture resistance of exptl. glass and glass-ceramic **resin** composites)
 IT 1305-78-8, Calcium Oxide, biological studies 1313-59-3, Sodium oxide (Na2O), biological studies 1314-56-3, Phosphorus oxide (P2O5), biological studies **7631-86-9, Silica**, biological studies
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fracture resistance of exptl. glass and glass-ceramic **resin** composites)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Jones, D; 25th Annual Meeting of the Society for Biomaterials 1999
- (2) Jones, D; J Biomed Mat Res V33, P89 HCAPLUS
- (3) Jones, D; Proc 11st Inter Symp Ceramics in Medicine 1998, V11, P149 HCAPLUS
- (4) Ruse, N; 5th World Biomat Cong 1996

IT **7631-86-9, Silica**, biological studies
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fracture resistance of exptl. glass and glass-ceramic **resin** composites)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L31 ANSWER 15 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:774162 HCAPLUS
 DN 132:15677

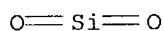
KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

ED Entered STN: 08 Dec 1999
 TI Dental composite **resin** compositions and artificial teeth
 therefrom
 IN Kawaguchi, Satoshi; Hasegawa, Akira
 PA GC Dental Products K. K., Japan
 SO Jpn. Kokai Tokkyo Koho, 16 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM A61K006-083
 ICS A61C013-087
 CC 63-7 (Pharmaceuticals)
 Section cross-reference(s): 38

FAN.CNT 1

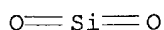
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11335221	A2	19991207	JP 1998-162929	19980526
	EP 962215	A2	19991208	EP 1999-304069	19990526
	EP 962215	A3	20011114		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6196843	B1	20010306	US 1999-320138	19990526
PRAI	JP 1998-162929	A	19980526		
AB	The comps. contain (A) ≥ 1 monomer and/or oligomer selected from methacrylates and acrylates, (B) (a) noncrosslinked homopolymers of methacrylates, acrylates, or styrene, (b) noncrosslinked copolymers of ≥ 2 selected from methacrylates, acrylates, and styrene, or (c) mixts. of the homopolymers and the copolymers, (C) (a') crosslinked homopolymers of methacrylates, acrylates, or styrene, (b') crosslinked copolymers of ≥ 2 selected from methacrylates, acrylates, and styrene, or (c') mixts. of the homopolymers and the copolymers, (D) organic-inorg. composite fillers , and optionally (E) inorg. fillers . Also claimed are artificial teeth prepared by curing the comps. The tooth shows good mech. strength and workability, e.g. in abrasion for correction, because interpenetrating polymer network is formed, and is resistant to discoloration. Me methacrylate 25.32, ethylene glycol dimethacrylate 7.34, poly(Me methacrylate) particles 18.23, allyl methacrylate-Me methacrylate copolymer particles 26.84, and γ -Methacryloxypropyltrimethoxysilane-Me methacrylate- silica copolymer 22.28%, and Bz2O2 were mixed and the resulting paste was heated at 135° and 300 MPa for 15 min to give a cured product. The product showed flexural modulus 3853.1, Brinell hardness 22.05, and Knoop hardness 23.8, vs. 2801.4, 18.35, and 18.2, resp., for a control prepared from Me methacrylate 97, ethylene glycol dimethacrylate 3, and poly(Me methacrylate) 200 parts.				
ST	dental composite resin interpenetrating polymer network artificial teeth; denture composite resin interpenetrating polymer network org inorg filler				
IT	Dental materials and appliances (composites; dental composite resin comps. having interpenetrating polymer network containing organic-inorg. composite fillers for artificial teeth)				
IT	Dental materials and appliances (dentures; dental composite resin comps. having interpenetrating polymer network containing organic-inorg. composite fillers for artificial teeth)				
IT	25777-71-3P, Ethylene glycol dimethacrylate-methyl methacrylate copolymer 251661-53-7P				

- RL: PNU (Preparation, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(dental composite **resin** compns. having interpenetrating polymer network containing organic-inorg. **composite fillers** for artificial teeth)
- IT 9011-14-7, Poly(methyl methacrylate) 25721-76-0, Poly(ethylene glycol dimethacrylate) 26715-19-5, Allyl methacrylate-methyl methacrylate copolymer
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dental composite **resin** compns. having interpenetrating polymer network containing organic-inorg. **composite fillers** for artificial teeth)
- IT 7631-86-9, **Silica**, biological studies
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**silane** coupling agent-treated, **filler**; dental **composite resin** compns. having interpenetrating polymer network containing organic-inorg. **composite fillers** for artificial teeth)
- IT 2530-85-0, γ -Methacryloxypropyltrimethoxysilane
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**silane** treated with, **filler**; dental **composite resin** compns. having interpenetrating polymer network containing organic-inorg. **composite fillers** for artificial teeth)
- IT 7631-86-9, **Silica**, biological studies
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**silane** coupling agent-treated, **filler**; dental **composite resin** compns. having interpenetrating polymer network containing organic-inorg. **composite fillers** for artificial teeth)
- RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 16 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:772521 HCAPLUS
DN 132:26885
ED Entered STN: 07 Dec 1999
TI Curable dental **resin** compositions with controlled viscosity
IN Sato, Takeshi; Kazama, Hideki; Himeno, Masataka
PA Tokuyama Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM A61K006-08
ICS A61K006-00
CC 63-7 (Pharmaceuticals)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11335220	A2	19991207	JP 1998-146082	19980527
PRAI	JP 1998-146082		19980527		
AB	The comps., useful for covering dental neck or dental root, contain fillers, preferably with average particle size 0.05-1 μ m, polymerizable monomers, and polymerization initiators, and show viscosity 3-300 Ps and plastic flow \leq 1 mm. The comps. can be applied using a small-tip brush and are free from dropping during application. γ -Methacryloyloxypropyltrimethoxysilane-treated spherical SiO₂-ZrO₂ 100, 2,2-bis[4-(methacryloxyethoxy)phenyl]propane 47, triethylene glycol dimethacrylate 20, camphorquinone 0.17, and Et 4-dimethylaminobenzoate were mixed to give a dental filler which had viscosity 22 Ps, plastic flow 0, and flexural strength 129 MPa.				
ST	dental composite resin filler				
IT	particle size viscosity flow distance				
IT	Dental materials and appliances (composites; composite resin comps. containing particle size-controlled fillers with low viscosity and flow distance)				
IT	Dental materials and appliances (root-canal fillers ; composite resin comps. containing particle size-controlled fillers with low viscosity and flow distance)				
IT	10287-53-3, Ethyl 4-dimethylaminobenzoate 10373-78-1, Camphorquinone 28602-27-9, Dimethylaminobenzaldehyde 33327-41-2 RL: CAT (Catalyst use); USES (Uses) (composite resin comps. containing particle size-controlled fillers with low viscosity and flow distance)				
IT	26426-05-1P 99256-93-6P 132612-49-8P RL: PNU (Preparation, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses) (composite resin comps. containing particle size-controlled fillers with low viscosity and flow distance)				
IT	7631-86-9, Silica , biological studies 60676-86-0, Quartz glass RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (composite resin comps. containing particle size-controlled fillers with low viscosity and flow distance)				
IT	174633-44-4, Silicon zirconium oxide RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (silane coupling agent-treated; composite resin comps. containing particle size-controlled fillers with low viscosity and flow distance)				
IT	7631-86-9, Silica , biological studies RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (composite resin comps. containing particle size-controlled fillers with low viscosity and flow distance)				
RN	7631-86-9 HCAPLUS				
CN	Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)				



L31 ANSWER 17 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:483624 HCAPLUS
 DN 132:153123
 ED Entered STN: 05 Aug 1999
 TI French chalk-wollastonite **composite** mineral **filler** as
 reinforcement agent for silicone **rubber**
 AU Shen, Zhen; Wu, Jihuai
 CS Zhejiang Inst. of Technical Supervision and Test, Hangzhou, 310013, Peop.
 Rep. China
 SO Xiangjiao Gongye (1999), 46(6), 343-345
 CODEN: XIGOED; ISSN: 1000-890X
 PB Xiangjiao Gongye Bianjibu
 DT Journal
 LA Chinese
 CC 39-9 (Synthetic **Elastomers** and Natural **Rubber**)
 AB The effect of the **particle** size of French chalk and wollastonite
 minerals pretreated by ultra-fine grinding and surface modification, the
 types of crosslinking agent for surface modification of the minerals, and
 the synergistic effect of the minerals on the mech. properties of silicone
rubber (SR) was studied. The French chalk and wollastonite
 ultra-fine powder increased the tensile strength and modulus at a definite
 elongation of SR. The wollastonite modified by **silane** coupling
 agent and the French chalk modified by borate showed excellent
 reinforcement effect for SR. The modified French chalk-wollastonite
composite filler-reinforced SR had better property than
silica-reinforced SR and showed comparable tensile strength, tear
 strength, and resilient values to those of aerosil-reinforced SR.
 ST French chalk wollastonite reinforced silicone **rubber**; tensile
 strength reinforced silicone **rubber**; tear strength reinforced
 silicone **rubber**; elongation reinforced silicone **rubber**
 ; hardness reinforced silicone **rubber**
 IT Soapstone
 RL: MOA (Modifier or additive use); USES (Uses)
 (French chalk-wollastonite **composite** mineral **filler**
 as reinforcement agent for silicone **rubber**)
 IT Silicone **rubber**, properties
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (French chalk-wollastonite **composite** mineral **filler**
 as reinforcement agent for silicone **rubber**)
 IT Coupling agents
 (borates and **silanes**; French chalk-wollastonite
composite mineral **filler** modified with coupling
 agents as reinforcement agent for silicone **rubber**)
 IT **Particle** size
 (of French chalk-wollastonite **composite** mineral
filler as reinforcement agent for silicone **rubber**)
 IT Elongation, mechanical
 Hardness (mechanical)
 Tensile strength
 (of silicone **rubber** filled with French
 chalk-wollastonite **composite** reinforcement agent)
 IT Strength
 (tearing; of silicone **rubber** filled with French
 chalk-wollastonite **composite** reinforcement agent)
 IT 13983-17-0, Wollastonite
 RL: MOA (Modifier or additive use); USES (Uses)
 (French chalk-wollastonite **composite** mineral **filler**
 as reinforcement agent for silicone **rubber**)

L31 ANSWER 18 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:380571 HCAPLUS
 DN 131:33042
 ED Entered STN: 21 Jun 1999
 TI Formation of pre-coated composite films with designs on metal plates
 IN Ikenaga, Yoshiki; Hashizume, Yasuo
 PA Nippon Paint Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS B05D003-00; B05D007-24
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55

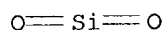
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11156291	A2	19990615	JP 1997-328491	19971128
PRAI	JP 1997-328491		19971128		
AB	Title films are formed by spreading metal plates with base coatings containing fillers of 5-1000 μ m and resin dispersions selected from (silicone-modified) acrylic, fluoro, vinyl chloride resins and (silicone-modified) polyesters, baking, and covering with topcoats. A primed and phosphated galvanized steel plate was coated with a Vinsol 10000X-20A (vinyl chloride resin sol) containing 20% glass of 5-30 μ m and baked at 200° for 60 s to form an uniform surface, which was further topcoated with a plastic sol through a patterned coater to form a title film.				
ST	metal precoat film design formation; filler base coating precoat film metal				
IT	Fillers (Formation of pre-coated composite films with designs on metal plates)				
IT	Diatomite Feldspar-group minerals Glass, uses Mica-group minerals, uses Oxides (inorganic), uses Silicates, uses Titanates RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses) (Formation of pre-coated composite films with designs on metal plates)				
IT	Galvanized steel Metals, miscellaneous RL: MSC (Miscellaneous) (Formation of pre-coated composite films with designs on metal plates)				
IT	Acrylic polymers, uses Fluoropolymers, uses Polyesters, uses RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (Formation of pre-coated composite films with designs on metal plates)				
IT	Polysiloxanes , uses RL: PEP (Physical, engineering or chemical process); POF (Polymer in				

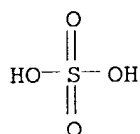
- formulation); TEM (Technical or engineered material use); PROC (Process);
USES (Uses)
(acrylic; Formation of pre-coated composite films with designs on metal plates)
- IT Fluoropolymers, uses
Polyamides, uses
Polyurethanes, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(crosslinked **particles**; Formation of pre-coated composite films with designs on metal plates)
- IT Coating materials
(multilayer; Formation of pre-coated composite films with designs on metal plates)
- IT **Polysiloxanes**, uses
Polysiloxanes, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyester-; Formation of pre-coated composite films with designs on metal plates)
- IT Vinyl compounds, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polymers, vinyl chloride-based; Formation of pre-coated composite films with designs on metal plates)
- IT Acrylic polymers, uses
Polyesters, uses
Polyesters, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(**polysiloxane**-; Formation of pre-coated **composite** films with designs on metal plates)
- IT **7631-86-9, Silica**, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
((colloidal); Formation of pre-coated composite films with designs on metal plates)
- IT 1344-28-1, Aluminum oxide (Al₂O₃), uses 1344-95-2, Calcium silicate
7727-43-7, Barium sulfate **14807-96-6**, Talc, uses
14808-60-7, Quartz, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(Formation of pre-coated composite films with designs on metal plates)
- IT 9002-86-2 226986-72-7, Supercoat 200
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(Formation of pre-coated composite films with designs on metal plates)
- IT 9002-84-0 9011-14-7, PMMA 25014-41-9, Polyacrylonitrile
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(crosslinked **particles**; Formation of pre-coated composite films with designs on metal plates)
- IT **7631-86-9, Silica**, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical

process); POF (Polymer in formulation); PROC (Process); USES (Uses)
 ((colloidal); Formation of pre-coated composite films with designs on
 metal plates)

RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

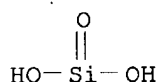


IT 7727-43-7, Barium sulfate 14807-96-6, Talc, uses
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical
 process); POF (Polymer in formulation); PROC (Process); USES (Uses)
 (Formation of pre-coated composite films with designs on metal plates)
 RN 7727-43-7 HCAPLUS
 CN Sulfuric acid, barium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Ba

RN 14807-96-6 HCAPLUS
 CN Talc (Mg3H2(SiO3)4) (9CI) (CA INDEX NAME)



● 3/4 Mg

L31 ANSWER 19 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:183768 HCAPLUS
 DN 130:224126
 ED Entered STN: 22 Mar 1999
 TI Adhesive- and **filler**-impregnated film **composite** for
 multilayer circuit devices
 IN Korleski, Joseph E., Jr.
 PA W. L. Gore & Associates, Inc., USA
 SO U.S., 22 pp., Cont.-in-part of U.S. 5,753,358.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM B32B005-18
 ICS B32B027-04; B32B027-20; B32B027-32
 NCL 428317100

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

FAN.CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5879794	A	19990309	US 1996-745396	19961108
	US 5753358	A	19980519	US 1996-591043	19960125
	US 5766750	A	19980616	US 1996-597345	19960206
	JP 08259915	A2	19961008	JP 1996-46315	19960304
	JP 08259764	A2	19961008	JP 1996-46349	19960304
	EP 786505	A2	19970730	EP 1997-300453	19970124
	EP 786505	A3	19981021		

R: DE, ES, FR, GB, IT, NL, SE

	JP 10017838	A2	19980120	JP 1997-27229	19970127
PRAI	US 1994-295952		19940825		
	US 1995-398329		19950303		
	US 1995-399702		19950303		
	US 1996-591043		19960125		
	US 1996-597345		19960206		
	US 1996-745396		19961108		

AB Title composite comprises a nonwoven substrate, preferably a fluoropolymer having nodes and interconnected fibrils with a void volume formed from the node and interconnected fibril structure, that is at least partially filled with a paste formed from a thermoset or thermoplastic adhesive and a particulate vapor phase-formed inorg. filler having uniform surface curvature; sufficient adhesive and **filler** are present to provide a **composite** having .apprx.5-40 volume% polymeric substrate, 10-95 volume% adhesive and filler, and 5-85 volume% inorg. filler. In the composite, the ratio of mean flow pore size to largest **particle** size is >0.7; or the ratio of mean flow pore size to average **particle** size is >1.5; or the ratio of min. pore size to average **particle** size is >0.8; or the ratio of min. pore size to largest **particle** size is >0.4. Thus, a swatch of expanded PTFE was dipped into a dispersion of 281.6 g **TiO2** in a 20 weight% solution of Nelco N 4002-5 (flame-retarded dicyanamide/2-methylimidazole-catalyzed bisphenol A-based polyglycidyl ether) in MEK and dried 1 min at 165° under tension to give an adhesive composite comprising **TiO2** 57, PTFE 13, and epoxy adhesive 30 weight%, which was laid up between copper foils and pressed at 600 psi and 225° for 90 min to give a laminate having dielec. constant 19.0 and withstood 30 s solder shock at 280°.

ST adhesive **filler** fluoropolymer film **composite**; epoxy **resin titania** PTFE film adhesive; polytetrafluoroethylene epoxy **resin titania** film adhesive; dielec adhesive film multilayer circuit device

IT Adhesive films
Cellular materials
Electric circuits
Electric insulators
Felts

(adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)

IT Carbon black, uses

RL: MOA (Modifier or additive use); USES (Uses)

(adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)

IT Epoxy **resins**, uses

Silicone **rubber**, uses

RL: TEM (Technical or engineered material use); USES (Uses)

- (adhesive; adhesive- and **filler**-impregnated film
composite for multilayer circuit devices)
- IT Phenolic **resins**, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(cyanate group-containing, adhesives; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT Silicone **rubber**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(di-Me, Me hydrogen, adhesive, Sylgard 4105; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(expanded or nonwoven substrate; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT Coupling agents
(in adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT Fluoropolymers, uses
Polyolefins
Synthetic fibers
Synthetic polymeric fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nonwoven substrate; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT Plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastics, adhesive; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT Plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermosetting, adhesive; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT 173452-35-2, Primaset PT 30
RL: MOA (Modifier or additive use); USES (Uses)
(adhesive; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT 25068-38-6, Nelco N 4002-5 25085-99-8, RSL 1462
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(adhesive; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT 9003-17-2, Polybutadiene 9003-55-8, R 104 68508-55-4, BT 2060BJ
RL: TEM (Technical or engineered material use); USES (Uses)
(adhesive; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT 2530-83-8, Dynasylan GLYMO
RL: MOA (Modifier or additive use); USES (Uses)
(coupling agent; in adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT 80-05-7, Bisphenol A, uses
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent for cyanated phenolic **resin** adhesive; adhesive- and **filler**-impregnated film **composite** for multilayer circuit devices)
- IT 7429-90-5, Aluminum, uses 7440-21-3, Silicon, uses 7440-32-6, Titanium, uses 7631-86-9, HW 11-89, uses 13463-67-7,

Titania, uses **13463-67-7**, TI Pure R 900
 RL: MOA (Modifier or additive use); USES (Uses)
 (**filler**; adhesive- and **filler**-impregnated film
composite for multilayer circuit devices)

IT 7440-50-8, Copper, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (foils bonded with; adhesive- and **filler**-impregnated film
composite for multilayer circuit devices)

IT 9002-84-0, PTFE 9002-88-4, Polyethylene 9003-07-0, Polypropylene
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonwoven substrate; adhesive- and **filler**-impregnated film
composite for multilayer circuit devices)

IT **1314-13-2, Zinc oxide**, uses 7440-02-0,
 Nickel, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (powder, **filler**; adhesive- and **filler**-impregnated
 film **composite** for multilayer circuit devices)

IT **156118-35-3**, Dimethylsilanediol-methylsilanediol copolymer
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**rubber**, adhesive; adhesive- and **filler**-impregnated
 film **composite** for multilayer circuit devices)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Anon; CA 1213950 1986
 (2) Anon; JP 6140328 1986
 (3) Anon; JP 62100539 1987 HCAPLUS
 (4) Anon; GB 2195269 1990 HCAPLUS
 (5) Anon; WO 9320562 1993 HCAPLUS
 (6) Anon; "Using GORE-TEX Reduces Signal Delay in PC Board" Electronics 1986
 (7) Doss; US 3963850 1976 HCAPLUS
 (8) Gore; US 3953566 1976
 (9) Gore; US 4187390 1980
 (10) Knappenberger; US 4231916 1980
 (11) Landi; US 3407249 1968 HCAPLUS
 (12) Leverett; US 3929721 1975 HCAPLUS
 (13) Morozumi; US 4143110 1979
 (14) Odgen; US 4038244 1977 HCAPLUS
 (15) Pratt; US 4241132 1980 HCAPLUS
 (16) Pufahl; US 4169184 1979 HCAPLUS

IT **7631-86-9**, HW 11-89, uses **13463-67-7, Titania**,
 uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (**filler**; adhesive- and **filler**-impregnated film
composite for multilayer circuit devices)

RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

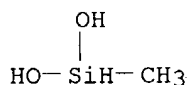
RN 13463-67-7 HCAPLUS
 CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

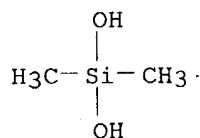
IT 1314-13-2, Zinc oxide, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (powder, **filler**; adhesive- and **filler**-impregnated
 film **composite** for multilayer circuit devices)
 RN 1314-13-2 HCAPLUS
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O=Zn

IT 156118-35-3, Dimethylsilanediol-methylsilanediol copolymer
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**rubber**, adhesive; adhesive- and **filler**-impregnated
 film **composite** for multilayer circuit devices)
 RN 156118-35-3 HCAPLUS
 CN Silanediol, dimethyl-, polymer with methylsilanediol (9CI) (CA INDEX
 NAME)
 CM 1
 CRN 43641-90-3
 CMF C H6 O2 Si



CM 2
 CRN 1066-42-8
 CMF C2 H8 O2 Si



L31 ANSWER 20 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:149116 HCAPLUS
 DN 131:9550
 ED Entered STN: 09 Mar 1999
 TI Elastic properties of experimental bioactive glass composites
 AU Jones, D. W.; Rizkalla, A. S.; Routledge, T.; Hall, G. C.
 CS Div. Biomaterials, Dalhousie University, Halifax, NS, B3H 3J5, Can.
 SO Bioceramics, Proceedings of the International Symposium on Ceramics in
 Medicine (1998), 11, 149-152
 CODEN: BPCMFY
 PB World Scientific Publishing Co. Pte. Ltd.
 DT Journal
 LA English

CC 63-7 (Pharmaceuticals)
Section cross-reference(s): 57

AB Dynamic elastic moduli were determined for exptl. **composites** containing bioactive glass **filler** ($\text{SiO}_2\text{-CaO-P}_2\text{O}_5\text{-Na}_2\text{O}$) synthesized by wet chemical. The 2 matrix **resins** used contained 2-dimethylaminoethyl methacrylate and camphorquinone ("A" 50% bis-GMA and 50% TEGDMA, and "B" 15% low mol. weight hydrophilic monomer, 42.5% bis-GMA and 42.5% TEGDMA). Filler **particles** with and without **silane** treatment were blended with **resin** "A" and "B" to produce **composite** materials (25-75% **filler** loading). The moduli for unfilled **resins** "A" and "B" were also determined. Specimens were stored in SBF at 37° for 4, 8, 14 and 60 days, and in water for 60 days. Composites with matrix "B" exhibited lower modulus for non-**silane** vs. **silane** treated condition for all periods of storage in SBF and water. **Composite** "B" (no-**silane** treatment) had a higher modulus following storage in water compared to SBF for 60 days. **Composite** "B" with **silane** treated **filler** exhibited a reduction in modulus following 4 to 60 days in SBF. Thus, it is important to evaluate mech. properties of bioactive glass/**resin** composites following storage in SBF rather than water.

ST elastic property bioactive glass composite polymethacrylate; bone cement bioactive glass polymethacrylate

IT Prosthetic materials and Prosthetics
(bioactive glass; elastic properties of bioactive glass composites)

IT Medical goods
(bone cements; elastic properties of bioactive glass composites)

IT Prosthetic materials and Prosthetics
(composites, implants; elastic properties of bioactive glass composites)

IT Young's modulus
(elastic properties of bioactive glass composites)

IT 109-16-0D, TEGDMA, polymers 1305-78-8, Calcium oxide, biological studies 1313-59-3, Sodium oxide (Na_2O), biological studies 1314-56-3, Phosphorus oxide (P_2O_5), biological studies 1565-94-2D, Bis-GMA, polymers 7631-86-9, **Silica**, biological studies 128796-12-3, 2-(N,N-Dimethylamino)ethyl methacrylate-bis-GMA-TEGDMA copolymer
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(elastic properties of bioactive glass composites)

IT 2530-85-0
RL: RCT (Reactant); THU (Therapeutic use); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(elastic properties of bioactive glass composites)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
(1) Jones, D; Ceram Trans 1995, V63, P87
(2) Jones, D; J Biomed Mater Res (Applied Biomaterials) 1996, V33, P89 HCAPLUS
(3) Kokubo, T; Bioceramics 1991, V4, P113
(4) Kokubo, T; J Biomed Mater Res 1990, V24, P331 HCAPLUS
(5) Rizkalla, A; Brit Ceram Trans 1997, V96, P16 HCAPLUS
(6) Rizkalla, A; J Biomed Mater Res 1996, V32, P119 HCAPLUS

IT 7631-86-9, **Silica**, biological studies
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(elastic properties of bioactive glass composites)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L31 ANSWER 21 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:435697 HCAPLUS
 DN 129:68620
 ED Entered STN: 15 Jul 1998
 TI Manufacture of fluoropolymer film **composite** containing adhesive
 and **fillers** for electronic device
 IN Korleski, Joseph E.
 PA W. L. Gore & Associates, Inc., USA
 SO U.S., 12 pp., Cont.-in-part of U. S. Ser. No. 399,702, abandoned.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM B32B005-16
 ICS B32B005-18; B32B027-04; B32B027-20
 NCL 428308400
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 76
 FAN.CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5766750	A	19980616	US 1996-597345	19960206
	JP 08259915	A2	19961008	JP 1996-46315	19960304
	US 5879794	A	19990309	US 1996-745396	19961108
	EP 786505	A2	19970730	EP 1997-300453	19970124
	EP 786505	A3	19981021		
	R: DE, ES, FR, GB, IT, NL, SE				
	JP 10017838	A2	19980120	JP 1997-27229	19970127
PRAI	US 1994-295952		19940825		
	US 1995-399702		19950303		
	US 1995-398329		19950303		
	US 1996-591043		19960125		
	US 1996-597345		19960206		
	US 1996-745396		19961108		

AB Title **composite** is manufactured by **filling** a mixture containing an adhesive and a particulate filler into voids of an expanded fluoropolymer film having nodes and interconnected fibrils, from which the void is formed. The composite contains 5-40 volume% expanded fluoropolymer substrate, 5-85 volume% inorg. filler and 10-95 volume% adhesive imbibed within the voids of the substrate. In the composite has the ratio of the mean flow pore size of the expanded fluoropolymer to the largest **particle** size of the filler ≥ 2 and/or the ratio of the min. pore size of the expanded fluoropolymer to the largest **particle** size of the filler is ≥ 1.4 . Thus, a swatch of expanded PTFE was dipped into a dispersion of 281.6 g **TiO₂** in 20% Nelco N 4002-5 (flame retarded dicyanamide/2-methylimidazole catalyzed bisphenol A-based polyglycidyl ether) MEK solution, dried for 1 min at 165° to give a composite with 57% **TiO₂** and 13% PTFE and 30% epoxy **resin**, several plies of which were laminated between Cu foils, showing dielec. constant 19.0.

ST adhesive **filler** fluoropolymer film **composite**;
 electronic device fabric fluoropolymer composite; **titanium**
oxide filler epoxy adhesive PTFE; copper filler adhesive fabric

- PTFE laminate
- IT Epoxy **resins**, uses
 RL: DEV (Device component use); USES (Uses)
 (adhesives; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT Polycyanurates
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (adhesives; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT Silicone **rubber**, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (di-Me, Me hydrogen, adhesives; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT Fluoropolymers, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (film; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT Fluoropolymers, uses
 RL: DEV (Device component use); USES (Uses)
 (films; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT Adhesives
 Composites
 Electric apparatus
Fillers
 Laminated materials
 (manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT 9003-55-8, R 104 25068-38-6, N 4002-5 68508-55-4, BT2060BJ
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (adhesive; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT 1314-13-2, Zinc oxide, uses 7440-02-0,
 Nickel, uses 7631-86-9, HW 11-89, uses 13463-67-7,
 Titanium dioxide, uses 13463-67-7, TI Pure R 900
 RL: MOA (Modifier or additive use); USES (Uses)
 (**filler**; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT 9002-84-0, PTFE
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (film; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT 7440-50-8, Copper, uses
 RL: DEV (Device component use); USES (Uses)
 (fluoropolymer film composite laminated with; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)
- IT 156118-35-3, Dimethylsilanediol-methylsilanediol copolymer
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (**rubber**, adhesive; manufacture of fluoropolymer film **composite** containing adhesive and **fillers** for electronic device)

device)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Anon; CA 1213950 1986
- (2) Anon; JP 6140328 1986
- (3) Anon; JP 62100539 1987 HCAPLUS
- (4) Anon; GB 2195269 1990 HCAPLUS
- (5) Anon; WO 9320562 1993 HCAPLUS
- (6) Anon; Electronics 1986
- (7) Bowman; US 4482516 1984
- (8) Chellis; US 5126192 1992 HCAPLUS
- (9) Doss; US 3963850 1976 HCAPLUS
- (10) Fushiki; US 4803115 1989 HCAPLUS
- (11) Gore; US 4187390 1980
- (12) Guth; US 4312914 1982 HCAPLUS
- (13) Hatakeyama; US 4784901 1988 HCAPLUS
- (14) Johnson; US 4680220 1987
- (15) Johnson; US 4747897 1988
- (16) Kamper; US 5202177 1993
- (17) Kawachi; US 4440879 1984 HCAPLUS
- (18) Knappenberger; US 4231916 1980
- (19) Knappenberger; US 4293519 1981 HCAPLUS
- (20) Komada; US 4772509 1988 HCAPLUS
- (21) Landi; US 3407249 1968 HCAPLUS
- (22) Leverett; US 3929721 1975 HCAPLUS
- (23) Marcora; US 4892669 1990 HCAPLUS
- (24) Markovich; US 5055342 1991
- (25) Morozumi; US 4143110 1979
- (26) Ogden; US 4038244 1977 HCAPLUS
- (27) Okada; US 4661301 1987 HCAPLUS
- (28) Okada; US 4798762 1989 HCAPLUS
- (29) Parekh; US 4437865 1984 HCAPLUS
- (30) Pratt; US 4241132 1980 HCAPLUS
- (31) Pufahl; US 4169184 1979 HCAPLUS
- (32) Sato; US 5087641 1992 HCAPLUS
- (33) Sato; US 5141972 1992 HCAPLUS

IT 1314-13-2, Zinc oxide, uses 7631-86-9
 , HW 11-89, uses 13463-67-7, Titanium dioxide, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (filler; manufacture of fluoropolymer film composite
 containing adhesive and fillers for electronic device)

RN 1314-13-2 HCAPLUS

CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O—Zn

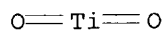
RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

RN 13463-67-7 HCAPLUS

CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

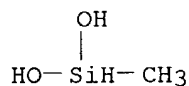


IT 156118-35-3, Dimethylsilanediol-methylsilanediol copolymer
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (rubber, adhesive; manufacture of fluoropolymer film composite containing adhesive and fillers for electronic device)

RN 156118-35-3 HCAPLUS
 CN Silanediol, dimethyl-, polymer with methylsilanediol (9CI) (CA INDEX NAME)

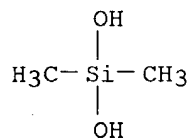
CM 1.

CRN 43641-90-3
 CMF C H6 O2 Si



CM 2

CRN 1066-42-8
 CMF C2 H8 O2 Si



L31 ANSWER 22 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:352585 HCAPLUS
 DN 129:16855
 ED Entered STN: 11 Jun 1998
 TI Adhesive-filler fluoropolymer film composite for electronic device
 IN Korleski, Joseph E.
 PA W. L. Gore & Associates, Inc., USA
 SO U.S., 12 pp., Cont.-in-part of U.S. Ser. No. 398.329, abandoned.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM B32B005-16
 ICS B32B005-18; B32B027-04; B32B027-20
 NCL 428308400
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 76
 FAN.CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5753358	A	19980519	US 1996-591043	19960125
	JP 08259764	A2	19961008	JP 1996-46349	19960304
	US 5879794	A	19990309	US 1996-745396	19961108
	EP 786505	A2	19970730	EP 1997-300453	19970124
	EP 786505	A3	19981021		
	R: DE, ES, FR, GB, IT, NL, SE				
	JP 10017838	A2	19980120	JP 1997-27229	19970127
PRAI	US 1994-295952		19940825		
	US 1995-398329		19950303		
	US 1995-399702		19950303		
	US 1996-591043		19960125		
	US 1996-597345		19960206		
	US 1996-745396		19961108		
AB	The composite comprises an expanded fluoropolymer with nodes and interconnected fibrils, the fluoropolymer having a void volume which is partially filled with a mixture containing a thermoset or thermoplastic adhesive and a particulate inorg. filler. The composite material contains sufficient adhesive and filler such that the composite contains 5-40 volume percent an expanded fluoropolymer; 5-85 volume percent an inorg. filler; and 10-95 volume percent of an adhesive and filler, the adhesive and filler being contained within the voids of the expanded fluoropolymer. In the composite, the ratio of the mean flow pore size of the expanded fluoropolymer to the largest particle size of the filler is ≥ 2 and/or the ratio of the min. pore size of the expanded fluoropolymer to the largest particle size of the filler is ≥ 1.4 . Thus, a composite, for preparation of laminate with Cu, was prepared by dipping an expanded PTFE in a solution of 20% Nelco N 4002-5 (flame retarded dicyanamide/2-methylimidazole catalyzed bisphenol A-based polyglycidyl ether) containing TiO2 (TI Pure R 900) and dried to give a sample having 57% TiO2 and 13% PTFE. and 30% epoxy resin .				
ST	fluoropolymer adhesive laminate filled epoxy; titanium oxide filler epoxy adhesive laminate; PTFE foam laminate composite elec device				
IT	Adhesive films Electric apparatus (adhesive- filler fluoropolymer film composite for electronic device)				
IT	Fluoropolymers, uses Polysiloxanes , uses RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses) (adhesive- filler fluoropolymer film composite for electronic device)				
IT	Epoxy resins , uses RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses) (adhesives; adhesive- filler fluoropolymer film composite for electronic device)				
IT	Silicone rubber , uses RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses) (di-Me, Me hydrogen, Sylgard 4105, adhesives; adhesive- filler fluoropolymer film composite for electronic device)				
IT	9002-84-0, PTFE 51350-55-1, Phenyltrimethoxysilane homopolymer, sru				

68508-55-4, BT 2060BJ 89885-26-7, Phenyltrimethoxysilane homopolymer
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)

(adhesive-filler fluoropolymer film **composite** for
 electronic device)

IT 1314-13-2, Zinc oxide, uses 7440-02-0,
 Nickel, uses 7631-86-9, HW 11-89, uses 13463-67-7,
 Titanium dioxide, uses 13463-67-7, TI Pure R 900
 RL: MOA (Modifier or additive use); USES (Uses)

(adhesive-filler fluoropolymer film **composite** for
 electronic device)

IT 9003-55-8, R 104 25068-38-6, N 4002-5
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)

(adhesives; adhesive-filler fluoropolymer film
composite for electronic device)

IT 156118-35-3, Dimethylsilanediol-methyl hydrogen silanediol
 copolymer
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)

(rubber, adhesives; adhesive-filler fluoropolymer
 film **composite** for electronic device)

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

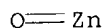
- (1) Anon; CA 1213950 1986
- (2) Anon; JP 6140328 1986
- (3) Anon; JP 62100539 1987 HCAPLUS
- (4) Anon; GB 2195269 1988 HCAPLUS
- (5) Anon; WO 9320562 1993 HCAPLUS
- (6) Anon; Electronics 1986
- (7) Bowman; US 4482516 1984
- (8) Chellis; US 5126192 1992 HCAPLUS
- (9) Doss; US 3963850 1976 HCAPLUS
- (10) Fischer; US 5034801 1991
- (11) Fushiki; US 4803115 1989 HCAPLUS
- (12) Gore; US 4187390 1980
- (13) Hatakeyama; US 4784901 1988 HCAPLUS
- (14) Johnson; US 4680220 1987
- (15) Johnson; US 4747897 1988
- (16) Kawachi; US 4440879 1984 HCAPLUS
- (17) Knappenberger; US 4231916 1980
- (18) Knappenberger; US 4293519 1981 HCAPLUS
- (19) Komada; US 4772509 1988 HCAPLUS
- (20) Landi; US 3407249 1968 HCAPLUS
- (21) Leverett; US 3929721 1975 HCAPLUS
- (22) Marcora; US 4892669 1990 HCAPLUS
- (23) Markovich; US 5055342 1991
- (24) Morozumi; US 4143110 1979
- (25) Ogden; US 4038244 1977 HCAPLUS
- (26) Okada; US 4661301 1987 HCAPLUS
- (27) Okada; US 4798762 1989 HCAPLUS
- (28) Parekh; US 4437865 1984 HCAPLUS
- (29) Pratt; US 4241132 1980 HCAPLUS
- (30) Pufahl; US 4169184 1979 HCAPLUS
- (31) Sato; US 5087641 1992 HCAPLUS
- (32) Sato; US 5141972 1992 HCAPLUS

IT 1314-13-2, Zinc oxide, uses 7631-86-9
 , HW 11-89, uses 13463-67-7, Titanium dioxide, uses

RL: MOA (Modifier or additive use); USES (Uses)
(adhesive-**filler** fluoropolymer film **composite** for
electronic device)

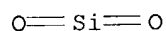
RN 1314-13-2 HCAPLUS

CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



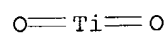
RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 13463-67-7 HCAPLUS

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



IT **156118-35-3**, Dimethylsilanediol-methyl hydrogen silanediol
copolymer

RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)

(**rubber**, adhesives; adhesive-**filler** fluoropolymer
film **composite** for electronic device)

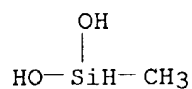
RN 156118-35-3 HCAPLUS

CN Silanediol, dimethyl-, polymer with methylsilanediol (9CI) (CA INDEX
NAME)

CM 1

CRN 43641-90-3

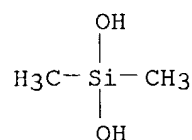
CMF C H6 O2 Si



CM 2

CRN 1066-42-8

CMF C2 H8 O2 Si



L31 ANSWER 23 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:274837 HCAPLUS
 DN 128:312955
 ED Entered STN: 13 May 1998
 TI Dental curable compositions as restorative composite **resins**
 IN Ono, Toru; Kusano, Shoji; Yuasa, Shigeki
 PA Tokuyama Soda Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM A61K006-08
 ICS A61K006-083
 CC 63-7 (Pharmaceuticals)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10114616	A2	19980506	JP 1996-272252	19961015
PRAI	JP 1996-272252		19961015		

AB The compns. contain (a) polymerizable monomers, (b) inorg. fillers having average **particle** size 0.01-1 μ m, (c) **composite** polymer **fillers** with yellowness ≤ 20 containing inorg. fillers having average **particle** size 0.01-1 μ m, and (d) polymerization initiators, in which (b) + (c) and (d) are 100-1000 and 0.1-5 weight parts per 100 weight parts (a), and (b)/(c) is 0.2-3. The compns. provide cured products showing high transparency, good lubricity on the buff-polished surface, and good mech. property. A 300:100 mixture of **SiO₂-ZrO₂ particles** pretreated with γ -methacryloyloxypropylmethoxysilane and bis-GMA-3G mixture containing Bz2O2 was heated at 95° for 1, and the cured product was crushed and milled to give a **composite filler**, which was treated with a mixture of EtOH and an aqueous H2O2 solution under reflux for decoloration. The **composite filler** was mixed with **silane-treated SiO₂-ZrO₂ particles** and bis-GMA-3G mixture containing polymerization initiators, and the mixture was irradiated to give a cured product.

ST dental restorative material **composite filler** yellowness; **resin composite** dental inorg **filler** polymer

IT Dental materials and appliances
 (**composites**; dental **composites** comprising monomers, inorg. **fillers**, **composite fillers** with low yellowness, and polymerization initiators)

IT Bleaching
 Decolorization
 (of **composite fillers**; dental **composites** comprising monomers, inorg. **fillers**, **composite fillers** with low yellowness, and polymerization initiators)

IT 1304-28-5P, Barium oxide, biological studies 1314-23-4P, Zirconia, biological studies 7631-86-9P, **Silica**, biological studies 13463-67-7P, **Titanium**, biological studies 26426-05-1P, Bis-GMA-triethylene glycol dimethacrylate copolymer
 RL: PNU (Preparation, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(dental **composites** comprising monomers, inorg.
fillers, composite fillers with low
yellowness, and polymerization initiators)
IT 7631-86-9P, **Silica**, biological studies
13463-67-7P, **Titania**, biological studies
RL: PNU (Preparation, unclassified); PRP (Properties); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(dental **composites** comprising monomers, inorg.
fillers, composite fillers with low
yellowness, and polymerization initiators)
RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

L31 ANSWER 24 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:519680 HCAPLUS
DN 127:177505
ED Entered STN: 15 Aug 1997
TI Electrically insulating composites of porous substrates with adhesives and
fillers and their manufacture
IN Korleski, Joseph E., Jr.
PA W.L. Gore & Associates, Inc., USA
SO Eur. Pat. Appl., 21 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C09J007-04
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 40, 76

FAN.CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 786505	A2	19970730	EP 1997-300453	19970124
	EP 786505	A3	19981021		
	R: DE, ES, FR, GB, IT, NL, SE				
	US 5753358	A	19980519	US 1996-591043	19960125
	US 5766750	A	19980616	US 1996-597345	19960206
	US 5879794	A	19990309	US 1996-745396	19961108
PRAI	US 1996-591043		19960125		
	US 1996-597345		19960206		
	US 1996-745396		19961108		
	US 1994-295952		19940825		
	US 1995-398329		19950303		
	US 1995-399702		19950303		

AB The composites are prepared by impregnating porous compressible substrates
having initial void volume ≥30% and a mean flow pore size with mixts.
containing a collection filler particulates having a maximum **particle**

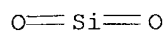
size, a min. **particle** size, and an average **particle** size and adhesives to give composites exhibiting ratio of the mean flow pore size of the substrate to the maximum particulate size ≥ 0.7 , ratio of the mean flow pore size of the substrate to the average particulate size ≥ 1.4 , ratio of the min. pore size of the substrate to the average particulate size ≥ 0.8 , and ratio of the min. pore size of the substrate to the maximum particulate size ≥ 0.4 . The composites are useful for bonding electronic components. A fabric of PTFE fibers was impregnated with a dispersion containing **TiO₂** (Ti-Pure R 900) and Nelco N 4002-5(I; bisphenol A epoxy **resin**) and dried to give a composite containing 57% **TiO₂**, 13% PTFE fibers, and 30% I. Several of the composite were sandwiched between Cu foils and pressed 90 min at 225° to give a laminate exhibiting dielec. constant 19.0 and good solder shock resistance at 280°.

- ST PTFE fiber nonwoven adhesive composite dielec; elec insulator PTFE nonwoven adhesive composite; epoxy **resin** PTFE nonwoven composite dielec; **titania filler** PTFE nonwoven adhesive **composite**; circuit board PTFE nonwoven adhesive composite; **silica filler** PTFE nonwoven adhesive **composite**; electronic device PTFE nonwoven adhesive composite
- IT Epoxy **resins**, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (adhesives; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Metals, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (conductive, laminates with composites; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture for)
- IT Phenolic **resins**, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cyanated, adhesives; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Silicone **rubber**, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (di-Me, Me hydrogen, Sylgard 4105, adhesive; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Adhesives
 Cellular materials
 Composites
 Electric insulators
 Foams
 Nonwoven fabrics
 Sponges (artificial)
 (elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Polyolefin fibers
 Polypropene fibers, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Laminated materials
 Printed circuit boards
 (elec. insulating composites of porous substrates with adhesives and fillers and their manufacture for)
- IT Electric apparatus
 (electronic devices; elec. insulating composites of porous substrates

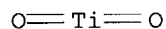
- with adhesives and fillers and their manufacture for)

IT Polyolefin fibers
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (ethylene; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Fluoropolymers, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber, nonwoven; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Carbon black, uses
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (**filler**; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- IT Synthetic polymeric fibers, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (fluoropolymers; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT **Fillers**
 (inorg. compds.; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- IT Synthetic fibers
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (nonwoven; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Fibers
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (organic, nonwoven; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Polyimides, uses
 Polyimides, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polycyanurate-, bismaleimide-based, adhesives; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Polycyanurates
 Polycyanurates
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polyimide-, bismaleimide-based, adhesives; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT Synthetic polymeric fibers, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (tetrafluoroethylene; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT **7631-86-9, Silica**, uses
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (HW 11-89, Admatechs SO-E 2, **filler**; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- IT 9003-55-8, R 104
 RL: TEM (Technical or engineered material use); USES (Uses)
 (R-104, adhesive; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)

- IT 25085-99-8, RSL 1462
RL: TEM (Technical or engineered material use); USES (Uses)
(RSL 1462, adhesive; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT **13463-67-7**, Titanium dioxide, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(Ti-Pure R 900, **filler**; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- IT 25068-38-6, Bisphenol A-epichlorohydrin copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(adhesive, Nelco N 4002-5; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT 9003-17-2, Polybutadiene 68508-55-4, BT 2060BH 173452-35-2, Primaset PT 30
RL: TEM (Technical or engineered material use); USES (Uses)
(adhesive; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT 9002-84-0, PTFE
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(fiber, nonwoven; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT 9002-88-4, Polyethylene 25085-53-4, Isotactic polypropylene
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(fiber; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture)
- IT 60676-86-0, Fused **silica**
RL: MOA (Modifier or additive use); USES (Uses)
(**filler**; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- IT **1314-13-2**, Zinc oxide, uses 7440-02-0, Nickel, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(**filler**; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- IT 7440-50-8, Copper, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(laminates with composites; elec. insulating composites of porous substrates with adhesives and fillers and their manufacture for)
- IT 7440-44-0, Carbon, uses
RL: MOA (Modifier or additive use); USES (Uses)
(nonconductive, **filler**; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- IT **156118-35-3**, Dimethylsilanediol-methylsilanediol copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(**rubber**, adhesive; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- IT **7631-86-9**, Silica, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(HW 11-89, Admatechs SO-E 2, **filler**; elec. insulating **composites** of porous substrates with adhesives and fillers and their manufacture)
- RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT **13463-67-7, Titanium dioxide, uses**
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (Ti-Pure R 900, **filler**; elec. insulating **composites**
 of porous substrates with adhesives and fillers and their manufacture)
 RN 13463-67-7 HCAPLUS
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



IT **1314-13-2, Zinc oxide, uses**
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (**filler**; elec. insulating **composites** of porous
 substrates with adhesives and fillers and their manufacture)
 RN 1314-13-2 HCAPLUS
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

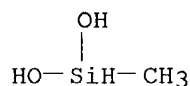


IT **156118-35-3, Dimethylsilanediol-methylsilanediol copolymer**
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**rubber**, adhesive; elec. insulating **composites** of
 porous substrates with adhesives and fillers and their manufacture)
 RN 156118-35-3 HCAPLUS
 CN Silanediol, dimethyl-, polymer with methylsilanediol (9CI) (CA INDEX
 NAME)

CM 1

CRN 43641-90-3

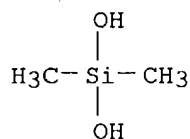
CMF C H6 O2 Si



CM 2

CRN 1066-42-8

CMF C2 H8 O2 Si



L31 ANSWER 25 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:435335 HCAPLUS
 DN 127:66702
 ED Entered STN: 12 Jul 1997
 TI Manufacture of thermoplastic **resin-inorganic filler composite** materials
 IN Yanagisawa, Kenichi
 PA Sumitomo Bakelite Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08K009-06
 ICS C08K003-00; C08K005-54; C08L023-08; C08L077-00; C08L101-00;
 C09C003-12

CC 37-6 (Plastics Manufacture and Processing)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09151274	A2	19970610	JP 1995-311215	19951129
PRAI	JP 1995-311215		19951129		

AB The composite materials are obtained by (i) mixing (A) fine powdered **particles** with OH and (B) **silane** coupling agents with ≥ 1 functional groups to react and cover the A surface with B, (ii) adding (C) thermoplastic **resins** with ≥ 1 functional groups which are reactive with the functional groups of B and (D) catalysts, and (iii) reacting to immobilize the **resins** on A. Thus, adding 4.2 g A 187 to Aerosil 200 in PhMe, stirring for 3 h at 80°, adding 2-phenylimidazole, removing PhMe, stirring with 100 g 1011FB, and kneading at 250-270° gave a composite. Solid phase NMR showed that the **silane** coupling agent, OH of **SiO₂**, and amino group of the polyamide were reacted. The composite was molded to give ASTM D test pieces showing tensile strength 93 MPa, Young's modulus in flexure 2.9 GPa, and heat distortion temperature 142°.

ST inorg **filler** thermoplastic **resin composite**;
 polyamide **silica silane** coupling agent
composite; glycidoxypropyl trimethoxysilane **silica** nylon
 6 composite

IT Carbon black, uses
 RL: CAT (Catalyst use); USES (Uses)
 (manufacture of thermoplastic **resin-inorg. filler composites** bonded tightly with **silane** coupling agents)

IT Polyamides, uses
 RL: POF (Polymer in formulation); USES (Uses)
 (manufacture of thermoplastic **resin-inorg. filler composites** bonded tightly with **silane** coupling agents)

IT 670-96-2, 2-Phenylimidazole 1344-28-1, Alumina, uses 9006-26-2, Ethylene-maleic anhydride copolymer 9010-77-9, Acrylic acid-ethylene copolymer 9011-13-6, Maleic anhydride-styrene copolymer 26061-90-5, Ethylene-glycidyl methacrylate copolymer
 RL: CAT (Catalyst use); USES (Uses)
 (manufacture of thermoplastic **resin-inorg. filler composites** bonded tightly with **silane** coupling agents)

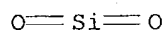
IT 2530-83-8, A 187 7631-86-9, Aerosil 200, uses

RL: MOA (Modifier or additive use); USES (Uses)
 (manufacture of thermoplastic **resin-inorg. filler composites** bonded tightly with **silane** coupling agents)

IT 25038-54-4, 1011FB, uses
 RL: POF (Polymer in formulation); USES (Uses)
 (manufacture of thermoplastic **resin-inorg. filler composites** bonded tightly with **silane** coupling agents)

IT **7631-86-9**, Aerosil 200, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (manufacture of thermoplastic **resin-inorg. filler composites** bonded tightly with **silane** coupling agents)

RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 26 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:303022 HCAPLUS
 DN 126:278360
 ED Entered STN: 12 May 1997
 TI High thermal-conductive **composite** spherical **particles** as **fillers** for sealing semiconductor devices
 IN Hirano, Tatsuro; Ino, Shigeki; Shiobara, Toshio
 PA Tatsumori Kk, Japan; Shinetsu Chem Ind Co
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08K003-00
 ICS C01B033-18; C08K009-00; C08L083-04
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09059425	A2	19970304	JP 1995-242481	19950828
	JP 3144281	B2	20010312		
PRAI	JP 1995-242481		19950828		

OS MARPAT 126:278360

AB Title **particles** with average **particle** size 3-85 μm are manufactured by granulating and calcining **particles** with heat conductivity ≥ 5 w/mK and average **particle** size ≤ 10 μm . Thus, a slurry containing alumina and KBM 04 [Si(OMe)₄] was spray dried, calcined, and coated with KBM 13 [MeSi(OMe)₃] to give **particles** with heat conductivity 31 w/mK. An epoxy **resin** composition containing the filler showed good heat conductivity, moisture-resistance, and flowability.

ST thermal cond alumina **composite particle filler**
 ; sealing thermal cond alumina filler semiconductor; spherical alumina filler **silane** binder coating; epoxy **resin** moisture resistance flowability filler

IT Electronic packaging materials
Fillers

Semiconductor materials

Water-resistant materials

(high thermal-conductive **composite** spherical
particles as **fillers** for moisture-resistant sealing
comps. for semiconductor devices)

IT Epoxy **resins**, preparation

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
(Properties); TEM (Technical or engineered material use); PREP
(Preparation); USES (Uses)

(high thermal-conductive **composite** spherical
particles as **fillers** for moisture-resistant sealing
comps. for semiconductor devices)

IT **Silanes**

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)

(high thermal-conductive **composite** spherical
particles as **fillers** for moisture-resistant sealing
comps. for semiconductor devices)

IT Coupling agents

(**silanes**, **fillers** coated with; high
thermal-conductive **composite** spherical **particles** as
fillers for moisture-resistant sealing comps. for
semiconductor devices)

IT Binders

(**silanes**, for **fillers**; high thermal-conductive
composite spherical **particles** as **fillers**
for moisture-resistant sealing comps. for semiconductor devices)

IT Plastics, properties

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)

(thermoplastics, **fillers** coated with; high thermal-conductive
composite spherical **particles** as **fillers**
for moisture-resistant sealing comps. for semiconductor devices)

IT 7631-86-9, **Silica**, properties

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)

(Crystalite; high thermal-conductive **composite** spherical
particles as **fillers** for moisture-resistant sealing
comps. for semiconductor devices)

IT 681-84-5, KBM 04

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)

(binder for **fillers**; high thermal-conductive
composite spherical **particles** as **fillers**
for moisture-resistant sealing comps. for semiconductor devices)

IT 1185-55-3, KBM 13 2530-83-8, KBM 403

RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)

(**fillers** coated with; high thermal-conductive
composite spherical **particles** as **fillers**
for moisture-resistant sealing comps. for semiconductor devices)

IT 188915-17-5P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
(Properties); TEM (Technical or engineered material use); PREP
(Preparation); USES (Uses)

(high thermal-conductive **composite** spherical
particles as **fillers** for moisture-resistant sealing
comps. for semiconductor devices)

IT 1344-28-1, Alumina, properties 24304-00-5, Aluminum nitride
 RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (high thermal-conductive **composite** spherical
particles as **fillers** for moisture-resistant sealing
 compns. for semiconductor devices)

IT 7631-86-9, Silica, properties
 RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (Crystalite; high thermal-conductive **composite** spherical
particles as **fillers** for moisture-resistant sealing
 compns. for semiconductor devices)

RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L31 ANSWER 27 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1995:867665 HCAPLUS
 DN 123:258805
 ED Entered STN: 20 Oct 1995
 TI Molded addition polymer composites improved in durability through the use
 of siloxanes
 IN Kirtley, Neil
 PA Imperial Chemical Industries PLC, UK
 SO PCT Int. Appl., 20 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C08F002-44
 ICS C08F292-00; C04B026-06; C08K009-06; C08L033-06; C08K005-54;
 C08L057-00
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9512621	A1	19950511	WO 1994-GB2404	19941102
W: AM, AU, BB, BG, BR, BY, CA, CN, CZ, FI, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LV, MD, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, TJ, TT, UA, US, UZ, VN				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2175805	AA	19950511	CA 1994-2175805	19941102
AU 9480644	A1	19950523	AU 1994-80644	19941102
AU 691207	B2	19980514		
EP 726917	A1	19960821	EP 1994-931640	19941102
EP 726917	B1	19980506		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
CN 1141046	A	19970122	CN 1994-194761	19941102
AT 165840	E	19980515	AT 1994-931640	19941102
ES 2116623	T3	19980716	ES 1994-931640	19941102
CZ 285083	B6	19990512	CZ 1996-1299	19941102
PL 179781	B1	20001031	PL 1994-314473	19941102
NO 9601818	A	19960702	NO 1996-1818	19960503
US 5719220	A	19980217	US 1996-640848	19961004

PRAI GB 1993-22810 A 19931105

WO 1994-GB2404 W 19941102

AB A highly filled, curable composition comprises (A) an addition polymerizable organic

liquid, e.g. acrylate **resin**, (B) 20-80% by volume of a finely divided particulate inorg. filler having a weight-average **particle** size <50 μm but not having a BET surface area >30 $\text{m}^2\text{-cm}^{-3}$, and (C) 0.05-0.5% polydimethylsiloxane for improved resilience to thermal shock and scratch resistance, optionally dispersants and coupling agents. Me methacrylate-based molding compns. containing **silica** and 0.1% poly(dimethylsiloxane) were formed into sink moldings having thermal shock resistance 3200 cycles, impact strength 5.0 kJ/m^2 , and modulus 8.6 GPa, vs. 50, 6.0, and 8.6, resp., without siloxane additive.

ST siloxane additive polyacrylate molding; polydimethylsiloxane additive polyacrylate molding; polyoxyalkylene siloxane additive polyacrylate molding; thermal shock resistance polyacrylate molding; mar resistance polyacrylate molding

IT Siloxanes and Silicones, properties

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(molded addition polymer composites improved in durability through the use of siloxanes)

IT Siloxanes and Silicones, properties

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(polyoxyalkylene-, molded addition polymer composites improved in durability through the use of siloxanes)

IT Polyoxyalkylenes, properties

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(siloxane-, molded addition polymer composites improved in durability through the use of siloxanes)

IT Household furnishings

(sinks, molded addition polymer composites improved in durability through the use of siloxanes)

IT **31900-57-9D**, Dimethylsilanediol homopolymer, trimethylsilyl-terminated **42557-10-8**

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(molded addition polymer **composites** improved in durability through the use of siloxanes)

IT 9011-14-7, PMMA

RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**silica-filled**; molded addition polymer **composites** improved in durability through the use of siloxanes)

IT **31900-57-9D**, Dimethylsilanediol homopolymer, trimethylsilyl-terminated **42557-10-8**

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(molded addition polymer **composites** improved in durability through the use of siloxanes)

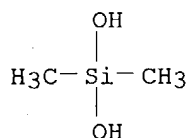
RN 31900-57-9 HCAPLUS

CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

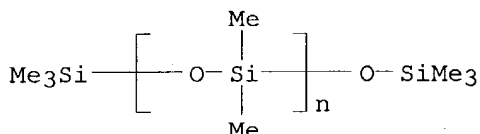
CM 1

CRN 1066-42-8

CMF C2 H8 O2 Si



RN 42557-10-8 HCAPLUS
 CN Poly[oxy(dimethylsilylene)], α -(trimethylsilyl)- ω -
 [(trimethylsilyl)oxy]- (9CI) (CA INDEX NAME)



L31 ANSWER 28 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1994:78620 HCAPLUS
 DN 120:78620
 ED Entered STN: 19 Feb 1994
 TI Epoxy **resin** powders containing inorganic **particles**
 IN Hakata, Toshuki; Horai, Shigeru; Fukugaito, Masaaki; Kakihara, Hiroomi
 PA Toda Kogyo Corp, Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08L063-00
 ICS C08K009-04
 ICA C08G059-18
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 74
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05186669	A2	19930727	JP 1992-24442	19920114
	JP 3097710	B2	20001010		
PRAI	JP 1992-24442		19920114		

AB The title composite powders comprise epoxy **resins** and surface-hydrophilically modified inorg. **particles** (to 80-99% content); are covered with other **resins** for a desired surface property; have number-average **particle** diameter 1-1000 μm , and are useful for toner and electromagnetic applications. Mixing NaOH 5.50, bisphenol A 20, epichlorohydrin 10, phthalic anhydride 2.0 and KBM602 coupler-treated magnetite **particles** (average **particle** diameter 0.24 μm) 200 g in 50 mL water while heating at 1.0-1.5°/min to 80°, mixing at the temperature for 1.5 h, filtering, washing and drying gave near-spherical **particles** with number-average **particle** diameter 36.6 μm and saturated magnetization 73.6 emu/g at magnetite **particle** content 86.6%. Coating the **particles** with a melamine **resin** to pickup weight 1.5% gave composite **particles** useful for toner (which has electrostatic property -92 $\mu\text{C/g}$).

- ST electrostatic powder epoxy **resin** composite toner; magnetite **filler** epoxy **resin composite** toner; melamine coated magnetite filler epoxy powder; electromagnetic powder composite epoxy **resin**; **silane** coupler magnetite powder epoxy **composite**
- IT Fluoropolymers
Polyamides, uses
Polyesters, uses
Siloxanes and Silicones, uses
RL: USES (Uses)
(composite **particles** with epoxy **resins** and inorg. fillers, for electrostatic or electromagnetic end uses)
- IT **Silanes**
RL: USES (Uses)
(couplers, epoxy **resins** filled with inorg. fillers treated by, further coated with other polymers for electrostatic or electromagnetic end uses)
- IT Epoxy **resins**, uses
RL: USES (Uses)
(highly-filled with coupler-treated inorg. **particles**, for electrostatic or electromagnetic end uses)
- IT Coupling agents
(**silanes**, epoxy **resins** filled with inorg. fillers treated by, further coated with other polymers for electrostatic or electromagnetic end uses)
- IT Electrography
(developer toners, composite **particles** of epoxy **resins** and inorg. fillers for, manufacture of)
- IT Electrophotographic developers
(toners, composite **particles** of epoxy **resins** and inorg. fillers for, manufacture of)
- IT 9003-08-1, Formaldehyde-melamine copolymer 9003-53-6, Himer SB-75
24937-79-9 25014-41-9, Polyacrylonitrile 25038-54-4, Polycaprolactam, uses 25068-38-6, Epiclon 850 143550-03-2, FC 023
RL: USES (Uses)
(composite **particles** with epoxy **resins** and inorg. fillers, for electrostatic or electromagnetic end uses)
- IT 919-30-2, KBE903 2602-34-8, KBE403 3069-29-2, KBM602
RL: USES (Uses)
(couplers, epoxy **resins** filled with inorg. fillers treated by, further coated with other polymers for electrostatic or electromagnetic end uses)
- IT **471-34-1**, Calcium carbonate, uses 513-77-9, Barium carbonate 546-93-0, Magnesium carbonate 1309-38-2, Magnetite, uses 1310-14-1, Goethite (Fe(OH)O) **1314-13-2**, Zinc white, uses 1317-60-8, Hematite, uses 1344-28-1, α -Alumina, uses **7727-43-7**, Barium sulfate 11126-22-0, Silicon oxide 11138-11-7, Barium ferrite **13463-67-7**, **Titanium oxide**, uses
RL: USES (Uses)
(epoxy **resins** filled with coupler-treated, further coated with other polymers, for electrostatic or electromagnetic end uses)
- IT 110-89-4D, Piperidine, epoxy **resin**-crosslinked 25068-38-6D, Bisphenol A-epichlorohydrin copolymer, piperidine-crosslinked 40989-34-2, Bisphenol A-epichlorohydrin-phthalic anhydride copolymer
RL: USES (Uses)
(highly-filled with coupler-treated inorg. **particles**, for electrostatic or electromagnetic end uses)
- IT **471-34-1**, Calcium carbonate, uses **1314-13-2**, Zinc white,

uses 7727-43-7, Barium sulfate 13463-67-7,

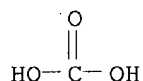
Titanium oxide, uses

RL: USES (Uses)

(epoxy **resins** filled with coupler-treated, further coated
with other polymers, for electrostatic or electromagnetic end uses)

RN 471-34-1 HCAPLUS

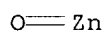
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Ca

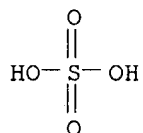
RN 1314-13-2 HCAPLUS

CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 7727-43-7 HCAPLUS

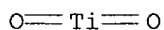
CN Sulfuric acid, barium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Ba

RN 13463-67-7 HCAPLUS

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 29 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:491512 HCAPLUS

DN 117:91512

ED Entered STN: 05 Sep 1992

TI Particulate epoxy **resins** highly filled with inorganic
particles and their manufacture

IN Horai, Shigeru; Hakata, Toshiyuki; Toda, Tetsuo

PA Toda Kogyo Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent
 LA Japanese
 IC ICM C08G059-18
 ICS C08G065-28; C08K009-04; C09C003-10; G03G009-08; G03G009-083;
 G03G009-113; H01F001-00; H01F001-36

CC 37-6 (Plastics Manufacture and Processing)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04011624	A2	19920116	JP 1990-114432	19900427
PRAI	JP 1990-114432		19900427		

AB. The title powdered products are obtained by the incorporation of inorg. **particles** having surface being treated with hydrophobic agents while curing an epoxy **resin** composition by alkali in aqueous medium. By this manner, composite **particles** having different sizes can be formed at controlled size distribution. Thus, mixing 50 mL water with NaOH 5.50, bisphenol A 20, epichlorohydrin 10, phthalic anhydride 2.0, and **silane** coupler (KBM-603)-treated (0.5%) magnetite **particles** (A; size 0.24 μ m) 200 g, heating at 1.0-1.5°/min to 80°, and stirring for 1.5 h gave nearly-spherical composite **particles** with average size 36.6 μ m which contained A 86.6%.

ST highly filled inorg epoxy **resin**; magnetite filled epoxy **resin particle**; aq medium polymn epoxy **resin**; alkali catalyst polymn epoxy **resin**

IT Epoxy **resins**, miscellaneous

RL: PREP (Preparation)

(**composite particles** with inorg. **fillers**, preparation of)

IT **Silanes**

RL: USES (Uses)

(couplers, inorg. **fillers** treated with, for epoxy **resin composite particles**)

IT Spheres

(highly-filled epoxy **resins** as)

IT Coupling agents

(inorg. **fillers** treated with, for epoxy **resin composite particles**)

IT 471-34-1, Calcium carbonate, uses 513-77-9, Barium carbonate 546-93-0, Magnesium carbonate 1306-23-6, Cadmium yellow, uses 1309-38-2, Magnetite, miscellaneous 1310-14-1, Goethite (Fe(OH)O) 1314-13-2, Zinc white, uses 1317-60-8, Hematite, uses 1344-28-1, α -Alumina, uses 7631-86-9, **Silica**, uses 7727-43-7, Barium sulfate 11138-11-7, Barium ferrite 12134-66-6, Maghemite (Fe₂O₃) 13463-67-7, **Titanium oxide**, uses

RL: USES (Uses)

(**composite particles** with epoxy **resins**, **silane** couplers for treating)

IT 25068-38-6P, Bisphenol A-epichlorohydrin copolymer

RL: PREP (Preparation)

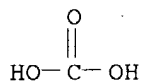
(**composite particles** with inorg. **fillers**, preparation of)

IT 919-30-2, KBE-903 2602-34-8, KBE 403 3069-29-2, KBM-602 61417-49-0, Plenact TTS

RL: USES (Uses)

(couplers, inorg. **fillers** treated with, for epoxy **resin composite particles**)

IT 471-34-1, Calcium carbonate, uses 1314-13-2, Zinc white,
uses 7631-86-9, Silica, uses 7727-43-7,
Barium sulfate 13463-67-7, Titanium oxide,
uses
RL: USES (Uses)
(composite particles with epoxy resins,
silane couplers for treating)
RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)

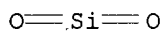


● Ca

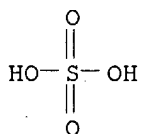
RN 1314-13-2 HCAPLUS
CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

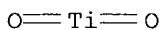


RN 7727-43-7 HCAPLUS
CN Sulfuric acid, barium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Ba

RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



L31 ANSWER 30 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

AN 1992:130257 HCAPLUS
 DN 116:130257
 ED Entered STN: 03 Apr 1992
 TI Melt-state dynamic mechanical properties of polyethylene/EPDM/silicon dioxide composites
 AU Scott, C.; Ishida, H.; Maurer, F. H. J.
 CS Dep. Macromol. Sci., Case West. Reserve Univ., Cleveland, OH, 44106, USA
 SO Journal of Reinforced Plastics and Composites (1991), 10(5), 463-76
 CODEN: JRPCDW; ISSN: 0731-6844
 DT Journal
 LA English
 CC 37-5 (Plastics Manufacture and Processing)
 Section cross-reference(s): 39
 AB Dynamic mech. spectra of composites of high-d. polyethylene (I), EPDM **rubber**, and silicon powder with an oxidized surface were obtained at 190° with a parallel plate instrument. The dynamic mech. behavior of these composites was significantly influenced by the surface character of **SiO2** powder. Composites of **SiO2** in I displayed higher reinforcing effects than expected based on the properties of the constituent materials assuming spherical **particles**. Treatment of **SiO2** with either (γ-aminopropyl)triethoxysilane (II) or (γ-methacryloxypropyl)trimethoxy silane (III) increased the dynamic shear modulus of these composites. Composites were also made with EPDM and EPDM grafted with maleic anhydride (EPDM-MA) and **SiO2** in I. The **rubber** addition had a significant effect on the properties of the resultant composites. **SiO2** was also treated with II and III before incorporation into multicomponent composites. There was evidence for a reaction between II and EPDM-MA during processing on the roll mill.
 ST polyethylene EPDM **silica** composite viscoelasticity; dynamic mech polyethylene EPDM **silica**; surface treatment **silica** composite viscoelasticity; **silane** treatment **silica** **composite** viscoelasticity; maleated EPDM polyethylene **silica** composite
 IT Simulation and Modeling, physicochemical
 (of dynamic viscoelasticity, in **silica-filled** polyethylene-(maleated) EPDM **rubber** composites)
 IT Coupling agents
 (**silanes**, **silica** surface treated with, polyethylene-(maleated) EPDM **rubber** composites **filled** with, melt-state dynamic mech. properties of)
 IT Viscoelasticity
 (dynamic, of **silica-filled** polyethylene-(maleated) EPDM **rubber** composites, in melt state, effect of **filler** surface treatment on)
 IT **Rubber**, synthetic
 RL: PRP (Properties)
 (ethylene-ethylidenenorbornene-propene, **silica-filled** polyethylene **composites**, melt-state dynamic mech. properties of, **filler** surface treatment effect on)
 IT **Rubber**, synthetic
 RL: PRP (Properties)
 (ethylene-ethylidenenorbornene-propene, maleated, **silica-filled** polyethylene **composites**, melt-state dynamic mech. properties of, **filler** surface treatment effect on)
 IT 9002-88-4, HDPE
 RL: PRP (Properties)
 (high-d., **silica-filled** (maleated) EPDM

rubber composites, melt-state dynamic mech. properties of, filler surface treatment effect on)

IT 7631-86-9, **Silica**, uses
 RL: USES (Uses)
 (polyethylene-(maleated) EPDM **rubber composites** filled with, melt-state dynamic mech. properties of, filler surface treatment effect on)

IT 25038-36-2, Ethylene-ethylidenenorbornene-propene copolymer
 RL: PRP (Properties)
 (**rubber, silica-filled** polyethylene **composites**, melt-state dynamic mech. properties of, filler surface treatment effect on)

IT 919-30-2, γ -Aminopropyltriethoxysilane 2530-85-0
 RL: PRP (Properties)
 (**silica** surface treated with, polyethylene-(maleated) EPDM **rubber composites** filled with, melt-state dynamic mech. properties of)

IT 7631-86-9, **Silica**, uses
 RL: USES (Uses)
 (polyethylene-(maleated) EPDM **rubber composites** filled with, melt-state dynamic mech. properties of, filler surface treatment effect on)

RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

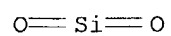
O=Si=O

L31 ANSWER 31 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1991:681183 HCAPLUS
 DN 115:281183
 ED Entered STN: 27 Dec 1991
 TI Characterization of polyethylene/EPDM/silicon dioxide multicomponent composites by solid-state dynamic mechanical spectroscopy
 AU Scott, C.; Ishida, H.; Maurer, F. H. J.
 CS Dep. Macromol. Sci., Case West. Reserve Univ., Cleveland, OH, 44106, USA
 SO Journal of Materials Science (1991), 26(21), 5708-16
 CODEN: JMTSAS; ISSN: 0022-2461
 DT Journal
 LA English
 CC 37-5 (Plastics Manufacture and Processing)
 Section cross-reference(s): 39

AB Various composites of polyethylene (I), EPDM **rubber**, and filler are milled and analyzed by solid-state dynamic mech. spectroscopy. The filler used is silicon powder with an oxidized surface as model for **silica**. The torsion pendulum measurements show that the multicomponent composites exhibit complex viscoelastic behavior. For **SiO2-filled** I, there is evidence of **particle-particle** interactions. In **composites** which include I, **rubber**, and **filler**, interactions of the I and especially of the **rubber** with the filler surface are significant. Treatment of the filler surface with γ -aminopropyltriethoxysilane (II) or γ -methacryloxypropyltrimethoxysilane has a significant influence on the resultant composite dynamic mech. spectrum. Maleic anhydride (III) grafting of the EPDM **rubber** also changes the character of the composites. These composites exhibit complex morphologies, which may be

controlled to a certain extent by filler surface treatment and grafting to the **rubber**. A chemical reaction between III modified EPDM and II during processing on the roll mill is evidenced. Prediction of the composite properties using the extended van der Poel model is qual. useful.

- ST polyethylene **silica** EPDM **rubber** composite; dynamic viscoelasticity polyethylene **silica** EPDM; **silica silane** treatment polyethylene **composite**; maleated EPDM polyethylene **silica** composite
- IT Mechanical loss
(of polyethylene-EPDM-**silica** **composites**, effects of **filler silane** treatment and **rubber** maleation on)
- IT Coupling agents
(**silanes**, **silica** treated with, polyethylene-EPDM **composites**, dynamic mech. spectroscopic characterization of)
- IT **Rubber**, synthetic
RL: USES (Uses)
(EPDM, maleated, polyethylene-**silica** **composites**, dynamic mech. spectroscopic characterization of)
- IT Viscoelasticity
(dynamic, of polyethylene-EPDM-**silica** **composites**, effects of **filler silane** treatment and **rubber** maleation on)
- IT **Rubber**, synthetic
RL: USES (Uses)
(ethylene-ethylidenenorbornene-propene, polyethylene-**silica** **composites**, dynamic mech. spectroscopic characterization of, effect of **rubber** maleation on)
- IT 7440-21-3, Silicon, uses and miscellaneous
RL: USES (Uses)
(filler, as model for oxidized **silica**, polyethylene-EPDM **composite** filled with, dynamic mech. spectroscopic characterization of)
- IT 9002-88-4, HDPE
RL: USES (Uses)
(high-d., EPDM-**silica** **composites**, dynamic mech. spectroscopic characterization of)
- IT **7631-86-9, Silica**, properties
RL: PRP (Properties)
(polyethylene-EPDM blend filled with, dynamic mech. spectroscopic characterization of, filler **silane** treatment effect on)
- IT 74-85-1
RL: USES (Uses)
(**rubber**, EPDM, maleated, polyethylene-**silica** **composites**, dynamic mech. spectroscopic characterization of)
- IT 25038-36-2, Ethylene-ethylidenenorbornene-propene copolymer
RL: USES (Uses)
(**rubber**, polyethylene-**silica** **composites**, dynamic mech. spectroscopic characterization of, effect of **rubber** maleation on)
- IT **7631-86-9, Silica**, properties
RL: PRP (Properties)
(polyethylene-EPDM blend filled with, dynamic mech. spectroscopic characterization of, filler **silane** treatment effect on)
- RN 7631-86-9 HCAPLUS
- CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



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